BASELINE ECOLOGICAL ASSESSMENT



PROJECT SITE:

U.S. ENVIRONMENTAL PROTECTION AGENCY
BROWNFIELDS ASSESSMENT DEMONSTRATION PILOT GRANT
PHASE II ENVIRONMENTAL SITE ASSESSMENT
J-PIT REDEVELOPMENT PROJECT
GARY, LAKE COUNTY, INDIANA

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MAY 17, 2002 REVISED DECEMBER 2, 2002 REVISED SEPTEMBER 19, 2003 REVISED NOVEMBER 12, 2003 We hereby certify that this Baseline Ecological Assessment Report has been prepared by V3 Consultants, for use by the City of Gary, its affiliates, lenders, and assignees.

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INTRODUCTION AND BACKGROUND

The subject properties were investigated by V3 Consultants (V3) on January 11 and 14, 2002, to determine the presence, extent and quality of any wetlands or other areas under US Army Corps of Engineers (ACOE) or State of Indiana, Department of Environmental Management (IDEM) jurisdiction. Large wetland areas and those associated with remnant dune and swale complexes were not staked during the initial field investigation. A growing-season floristic inventory of each pilot section was conducted on May 28, 2002. Additional floristic data collection and wetland boundary staking was completed on September 3 and 4, 2003. Delineated wetland boundaries were marked in the field using wooden stakes topped with pink ribbon flagging labeled "Wetland Delineation" and numbered consecutively from one to the end. Wetland stakes were located in September 2003 using a hand-held GPS unit; these wetland boundaries are depicted on Exhibit V of this report. Thus, this report summarizes the results of the wetland investigation and provides technical documentation for all delineated wetlands. The report also contains preliminary information on other ecological aspects of the site, such as endangered or threatened species and environmental pollution concerns.

The 216-acre project area is generally bordered by 15th Avenue to the north, West 23rd Avenue to the south, Calhoun Street to the east, and the Elgin Joliet & Eastern Railroad to the west (SE ¼ Section 11, SW ¼ Section 12, NW ¼ Section 13, and NE ¼ Section 14 T36N R9W 2nd Principal Meridian); Lake County, Indiana; Highland Quadrangle; Exhibit I). The project area is divided into five separate parcels identified respectively as the Green Space Site (J-Pit) and four Pilot Sections, numbered one through four (see Exhibit V). Individual parcels are briefly described below.

The Green Space Site, also commonly referred to as the J-Pit, encompasses 114.00 acres bounded by the Elgin Joliet & Eastern Railroad to the west, 17th Avenue to the north, Colfax Street to the east, and the 21st Avenue Right-of-Way (ROW) to the south. This location is a former gravel and sand quarry that is being maintained by pumping.

Pilot Section 1 is 16 acres bounded by Hobart Street to the west, 15th Avenue to the north, Dallas Street to the east, and 17th Avenue to the south. The Gary Landfill is located southeast of Pilot Section 1 and the Green Space Site is located to the southwest.

Pilot Section 2 is 23 acres bounded by Fairbanks Street to the west, 21st Avenue to the north, Colfax Street to the east, and 23rd Avenue to the south. The Green Space Site is located directly north of Pilot Section 2. This location apparently was subdivided and is partially paved, but was not completed.

Pilot Section 3 is 27 acres bounded by Colfax Street, 22^{nd} Avenue, Hamlin Street, and King Street to the west; 21^{st} Avenue to the north; Calhoun Street to the east; and 23^{rd} Avenue to the south. The Gary Landfill is located directly north of Pilot Section 3.

Pilot Section 4 is 36 acres bounded by the Elgin Joliet & Eastern (EJ&E) Railroad to the west, the 21st Avenue ROW to the north, Fairbanks Street to the east, and 23rd Avenue to the south. The Green Space Site is located north of Pilot Section 4 and Pilot Section 2 is located directly east.

The National Wetlands Inventory (NWI) map (Exhibit II) identifies five wetlands as potentially occurring within the project area. These five wetlands are described by the following three wetland habitat types:

- Seasonally flooded emergent (PEMC)
- Excavated seasonally flooded emergent (PEMCx)
- Excavated semipermanently flooded unconsolidated bottom (PUBFx)

Three excavated semipermanently flooded emergent wetlands (PUBFx) are identified as potentially occurring on the Greenspace Site, as well as one excavated seasonally flooded emergent wetland (PEMCx). One seasonally flooded emergent wetland (PEMC) is identified on the southern half of Pilot Section 4. No wetlands are identified as occurring on Pilot Sections 2 and 3.

Soils within the project limits were mapped by the Natural Resources Conservation Service (NRCS) in 1972¹. Three soil series have been mapped within the project area, as shown in Exhibit III. These are Oakville-Tawas complex (OkB), Tawas muck (Ta), and Urban Land (Ur). Tawas is listed in Hydric Soils of the United States (1991).

Exhibit V is a 1" = 200' scale DigiAirTM aerial photograph (Fall 2002) showing the location of sampling points around each wetland perimeter, and in investigated upland areas. The approximate limits of wetlands within the subject property, as determined by our interpretation of soils, hydrology and hydrophytic vegetation and derived from GPS locations taken during the September 2003 site visits, are indicated on the aerial photograph. The wetland boundaries had not been surveyed at the date of this report. Mr. Stephen Sprecher of the Detroit District, US Army Corps of Engineers has suggested that a survey is not required, providing that there is sufficient buffer between wetlands and any proposed development. The Detroit District usually requires a minimum buffer width of 50 feet, although narrower widths are possible.

Soil Survey of Lake County, Indiana. 1972. U.S. Government Printing Office, Washington, D.C.

REGULATORY REQUIREMENTS

U.S. ARMY CORPS OF ENGINEERS

Pursuant to Section 404 of the Clean Water Act, the ACOE has jurisdiction over the placement of fill or dredged material in all jurisdictional waters of the United States. Jurisdictional areas include wetlands, rivers, streams, small tributary waterways, lakes, and natural ponds. A Section 404 permit must be obtained before placing any fill material within a jurisdictional area. Wetlands that lack a connection to a surface water tributary system are considered isolated wetlands and are not regulated under the Clean Water Act.²

In addition, excavated ponds do not meet the definition of a natural pond and do not generally qualify as jurisdictional "waters of the United States", as defined by the ACOE. Specifically, the following areas are not generally classified as "waters of the United States", according to the stipulations in the preamble to 33 CFR Parts 320 through 330, Vol. 51, No. 219, November 13, 1996, page 41217:

- Non-tidal drainage and irrigation ditches excavated in dry land.
- Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain
 water and which are used exclusively for such purposes as stock watering, irrigation,
 settling basins, or rice growing;
- Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic purposes; and
- Waterfilled depressions created in dry land incidental to construction activity and for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

The IDEM administers the Section 401 Water Quality Certification (WQC) Program.³ Section 401 of the federal Clean Water Act (CWA) requires any applicant for a federal permit to conduct any activity that may result in a discharge of pollutants to water to first obtain a water quality certification from the state. The goal of the Section 401 WQC Program is to protect the water quality of all "Indiana waters" by fair, efficient, and timely review of applications, to require avoidance of impacts to water resources, minimization of impacts which are unavoidable, and mitigation of all remaining impacts to insure no net loss of wetlands and no degradation of water quality.

Information in this section was taken from the IDEM Office of Water Management Web Site at http://www.in.gov/idem/water/planbr/401/index.html, updated on April 4, 2003, at the date of this report.

² U.S. Supreme Court decision in Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (January 9, 2001). Title 33 CFR §328.3(a)(3), as clarified and applied to petitioner's solid waste disposal site pursuant to a rule protecting migratory bird habitat in intrastate waters not adjacent to navigable waters, exceeds the authority granted to respondents under the Clean Water Act.

Most of the applications for federal permits that trigger the need for WQC are Department of the Army permit applications. However, because both agencies have somewhat different authority/jurisdiction, both agencies need to be contacted before any discharge to or activity in a wetland or other water body occurs. If the ACOE decides a federal permit is needed, then the person must obtain a Section 401 Water Quality Certification from IDEM. IDEM will review the proposed activity to determine if it will comply with Indiana law, including state water quality standards. IDEM will require the applicant to avoid impacts if possible, minimize any unavoidable impacts and provide compensatory mitigation for any remaining adverse impacts to wetlands and other waters. IDEM will deny water quality certification if the applicant cannot show that its discharge will comply with state law and may cause violations of water quality standards. As an example, IDEM may deny certification if the impact can be avoided or the applicant's proposed compensatory mitigation cannot offset adverse impacts to water quality. A person may not proceed with a project until he or she has received a certification (or other authorization) from IDEM.

If the ACOE determines that a federal permit is not needed under section 404 of the CWA, then another form of authorization from IDEM will probably be needed. This is likely to be the case for "isolated wetlands" where the ACOE has determined that it has no basis for federal jurisdiction. Again, because the federal government's jurisdiction is different from the state's, IDEM must be contacted to determine what, if any, state authorization is needed before an applicant may legally discharge pollutants (including fill material) to a wetland.

On February 1, 2002, IDEM published a new rule adding wetland water quality standards to the state water quality standards. They also proposed a new article to establish procedures and criteria for review of projects requiring either 401 WQC or a state surface water modification permit for isolated wetlands not subject to ACOE jurisdiction. The Water Pollution Control Board preliminarily adopted the 401 Water Quality Certification and Wetlands Water Quality Standards rule on February 13, 2002. Under the proposed Wetland Water Quality Standards, dune and swale complexes would be regulated as Tier II wetlands, which are considered high quality areas of special concern (327 IAC 2-1.8-4).

During this rulemaking process, IDEM developed an "interim regulatory process" for regulating isolated wetlands under their NPDES permitting program that regulates all "Waters" of the state. Under IC 13-11-2-265 Section 265(a) "Waters", for the purpose of water pollution and environmental regulation, means the accumulations of water, surface and underground, natural and artificial, public and private, or that part of accumulations of water with any part within or touching the borders of Indiana. Private ponds, off-stream ponds, reservoirs, or facilities built for reduction or control of pollution or cooling of water are not included in this definition unless discharges from the pond, reservoir or facility causes or threatens to cause water pollution.

WETLAND DETERMINATION METHODS

Wetland determinations are made following the methods given in the Corps of Engineers Wetlands Delineation Manual (1987). Under the delineation procedures in this manual, an area must exhibit characteristic wetland hydrology, hydric soils, and hydrophytic vegetation to be considered a wetland. If field investigation determines that any of the three parameters are not

met, the area usually does not qualify as wetland. Moreover, drainage ditches excavated in dry land are generally not considered jurisdictional waters of the United States by the ACOE of Engineers (preamble to 33 CFR Parts 320 through 330, Federal Register Vol. 56, No. 219, 41217).

As part of a delineation report, data forms and technical information are required by the ACOE, to document the three parameters for any area determined to be wetland. Data forms for wetlands identified at the subject property are provided in Appendix I. A brief description of the field methods used, a description of the three wetland parameters, and a commentary on floristic analysis are provided in Appendix II.

Plant species lists are compiled for each area identified, focusing on the plant communities within each identified wetland area. This accumulated floristic data is analyzed using the Floristic Quality Assessment (FQA) methodology, which is an assessment technique that was developed for a rapid quality evaluation of vegetation in a defined area. The software that applies the calculations for the FQA method was used to generate the species lists provided in this report. Technical plant names in these lists that appear in CAPITAL LETTERS are adventive species, considered non-native in the 22-county Chicago Region, which includes Lake County, Indiana. These species generally reduce the quality of native plant communities by excluding some native species and competing directly with others. A more detailed explanation of the Floristic Quality Assessment method is provided in Appendix II.

It should be noted that the initial site investigation was conducted outside the growing season (April to September). Thus, only plants with recognizable, persistent plant parts could be reliably identified. However, suitable remnant parts were available for adequate plant identification. Subsequently, supplemental growing season inventories were conducted on May 28, 2002, and September 3 and 4, 2003. During these follow-up floristic investigations, the potential for rare, threatened, or endangered species to inhabit the project area also was evaluated.

EXECUTIVE SUMMARY

Four wetlands were found within the 215-acre project area, totaling approximately 18.27 acres. These wetlands were dominated by low-quality vegetation, such as Common Reed (*Phragmites australis*), Purple Loosestrife (*Lythrum salicaria*), Reed Canary Grass (*Phalaris arundinacea*), and Narrow-leaved Cattail (*Typha angustifolia*), although some higher ranked species also were present in these wetlands. Areas described in this report follow an alphanumeric coding that indicates the Pilot Section on which the area discussed is located. Thus, Area 1 is Pilot Section 1, Area 2 is Pilot Section 2, and so on. Letters following the area number indicate either upland or wetland within an area. The findings at each of the Pilot Sections are summarized below.

J-Pit Green Space Site.

The J-Pit does not qualify as "waters of the United States" as it is a sand and gravel quarry that has not been abandoned and which is operated (pumped) by the City of Gary. In addition, it does not qualify as "waters" of the State of Indiana as it appears to qualify as one or more of the following: off-stream ponds, reservoir, or facility built for reduction or control of pollution or

cooling of water. In a letter dated June 20, 2003, ACOE (Detroit District) determined that the J-Pit or Green Space Site "...does not meet Corps criteria for regulation and is therefore, not within Federal Jurisdiction (File No. 90-145-129-2)." A copy of this jurisdictional determination is included in Appendix V of this report and is valid through through June 20, 2008, when it may be re-evaluated. However, this letter does not eliminate the need to contact IDEM for state permitting requirements. IDEM should be contacted well in advance of any proposed site modification activities.

<u>Pilot Section 1</u>. Pilot Section 1 does not contain any jurisdictional wetland areas; however, it does contain moderate to good quality native Black Oak (*Quercus velutina*) savanna on remnant sand dunes, which is a relatively rare habitat in Indiana. Therefore, a growing season botanical survey should be conducted in advance of any proposed site development to determine whether any Indiana State threatened or endangered plant species are present. No listed plant species have been found to date, but additional and more extensive surveys may be warranted based on the number and quality of species already known to be present to prevent later project delays.

<u>Pilot Section 2.</u> Area 2b is an approximately 0.10-acre emergent wetland located in the southwestern portion of Pilot Section 2, along the southern property boundary. Due to historic excavation and leveling of sand dunes that once occupied this section, no dune and swale features still exist on this parcel. The small wetland does not appear to be part of a remnant swale based on the lack of characteristic swale vegetation and an underdeveloped vegetative community. The closed depressional nature of Area 2b means this wetland is likely to be considered an isolated wetland not under ACOE jurisdiction.

<u>Pilot Section 3</u>. Area 3c is an approximately 4.91-acre emergent wetland located in the southern portion of Pilot Section 3. A 1.48-acre remnant Black Oak savanna (Area 3b) also is located on the southern portion of Section 3, south of the emergent wetland. The emergent wetland portion of the remnant dune and swale complex is likely to be considered isolated due to its closed depressional nature and lack of a surface water connection. No other dune features are located on Pilot Section 3 due to historic dune leveling.

Pilot Section 4. Area 4b is an approximately 12.40-acre emergent wetland located in the southern part of Pilot Section 4 (Exhibit V). An emergent swale, located between two dunes, is directly connected to a much larger wetland located south of the dune and swale complex. This larger emergent wetland is likely an old swale that was expanded during the construction of the residential subdivision located south of Pilot Section 4. These wetlands appear to be isolated in nature. This large emergent wetland is partially surrounded by Black Oak savanna, making it the largest remnant dune and swale complex identified on this site. The size of the dune and swale complex is approximately 18.00 acres, which encompasses the southern portions of Pilot Section 4. This limits of this portion of the site is defined by a chain-link fence that traverses the property at its mid-section. The northern portion of Section 4 contains leveled dunes and a sand borrow pit, but no intact dune and swale features. Although initially inconclusive, a reevaluation of the sand pit on September 3, 2003, resulted in the addition of 0.86 acre of wetland (Area 4c) to Pilot Section 4. The combined wetland acreage for Areas 4b and 4c equals 13.26 acres. These wetlands appear to be isolated, but because of their association with a dune and swale habitat complex they may be under Indiana DEM jurisdiction.

Table 1. Wetland Summary Table for the J-PIT Redevelopment Project.

Wetland	Acreage (on-site)	Off-site Acreage	Habitat Type*	Native Mean Conservatism (NMC)**	Floristic Quality Index (FQI)**	Adjacent?
Area 2b	0.10		PFO1C	2.8	16.6	N
Area 3c	4.91		PEMC	4.1	31.9	N
Area 4b	12.4		PEMC	4.8	42.3	N
Area 4c	0.86		PEMA	3.7	20.5	N
Total				at with the same of	and the second	The Property of
Wetland	18.27	0.00		print a		

^{*} Based on the NWI wetland classification scheme. See Cowardin et al. (1979) for more information.

RESULTS OF THE FIELD INVESTIGATION

J-PIT GREEN SPACE SITE

No data points taken

The J-Pit consists of an approximately 114.00-acre sand and gravel quarry that is maintained by pumping. Approximately thirty percent of the quarry is vegetated, while the remaining seventy percent consists of open water. Common Reed is the dominant plant species throughout the vegetated portions of the quarry, but several other plant species were observed in limited abundance and distribution. These species are Narrow-leaved Cattail, Purple Loosestrife, Great Bulrush (Scirpus validus), Chairmaker's Rush (Scirpus pungens), Cocklebur (Xanthium strumarium), and Torrey's Rush (Juncus torreyi).

Most of the open water portion of the quarry is inundated with a few inches of standing water (ranging from 1 to 5 inches), but several deeper areas appear to have been excavated to provide positive drainage within the quarry. Since the J-Pit is actively maintained, and it lacks true soil structure, it is not a jurisdictional wetland. A jurisdictional determination was first conducted by the ACOE in 1994. The ACOE determined then that the J-Pit was not a jurisdictional wetland or waters of the United States. Because jurisdictional determinations expire after five years, a request for an updated determination was made early in 2003. The South Bend field office of the ACOE (Detroit District) reaffirmed that the J-Pit is not a jurisdictional wetland or Waters of The U.S. in a letter dated June 20, 2003 (Appendix V). Thus, modification of the J-pit does not require a permit from the ACOE, although state and local permits may be applicable.

^{**} Based on the Floristic Quality Assessment (FQA) methodology in *Plants of the Chicago Region* (Swink and Wilhelm, 1994).

PILOT SECTION 1

Area 1 - Upland

Data Points 1 Through 4

Area 1 consists of the entire 15-acre Pilot Section I (Exhibit V) (Photos 1 through 4)). The majority of Pilot Section 1 is remnant dune with a Black Oak savanna plant community; however, a residential structure and auto repair shop also is located on this parcel. No wetlands or remnant swales were identified as occurring on Pilot Section 1 during this site investigation. The dominant plant species at this site are Black Oak, Tartarian Honeysuckle (Lonicera tatarica), Sassafras (Sassafras albidum), Hairy Sweet Cicely (Osmorhiza claytonii), Clustered Black Snakeroot (Sanicula gregaria), Creeping Charlie (Glechoma hederacea), Black Cherry (Prunus serotina), Riverbank Grape (Vitis riparia), Prickly Wild Gooseberry (Ribes cynosbati), and Prickly Lettuce (Lactuca serriola). Less than 50% of these species are hydrophytic, thereby failing the vegetation criterion.

Floristic diversity of the plant community is composed primarily of high quality species (Native Mean Coefficient of Conservatism (NMC) = 4.10, Native Floristic Quality Index (FQI) = 46.90), despite the past disturbances. The floristic quality calculations and a plant species inventory for Area 1 are provided below.

FLORISTIC QUALITY DATA	Native	130	78.8%	Adventive	35	21.2%
130 NATIVE SPECIES	Tree	14	8.5%	Tree	5	3.0%
165 Total Species	Shrub	17	10.3%	Shrub	5	3.0%
4.1 NATIVE MEAN C	W-Vine	4	2.4%	W-Vine	0	0.0%
3.2 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
46.9 NATIVE FQI	P-Forb	68	41.2%	P-Forb	9	5.5%
41.6 W/Adventives	B-Forb	6	3.6%	B-Forb	9	5.5%
1.8 NATIVE MEAN W	A-Forb	3	1.8%	A-Forb	4	2.4%
2.2 W/Adventives	P-Grass	10	6.1%	P-Grass	0	0.0%
AVG: Fac. Upland (+)	A-Grass	1	0.6%	A-Grass	3	1.8%
	P-Sedge	4	2.4%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	3	1.8%	_		

ACRONYM	C SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACENEG	0 Acer negundo	-2	FACW-	Nt Tree	BOX ELDER
ACESAU	3 Acer saccharum		FACU	Nt Tree	SUGAR MAPLE
AGRGRY	2 Agrimonia gryposepala	2	FACU+	Nt P-Forb	TALL AGRIMONY
AGRPUB	5 Agrimonia pubescens	5	UPL	Nt P-Forb	SOFT AGRIMONY
AILALT	O AILANTHUS ALTISSIMA	5	UPL	Ad Tree	TREE OF HEAVEN
AMEARB	8 Amelanchier arborea	3	FACU	Nt Tree	SERVICEBERRY
AMMBRE	7 Ammophila breviliqulata	- 5	UPL	Nt P-Grass	MARRAM GRASS
ANDSCO	5 Andropogon scoparius	4	FACU-	Nt P-Grass	LITTLE BLUESTEM GRASS
ANECYL	6 Anemone cylindrica 7 Anemone quinquefolia	5	UPL	Nt P-Forb	THIMBLEWEED
ANEQUI			[UPL]	Nt P-Forb	WOOD ANEMONE
ANETHA	7 Anemonella thalictroides	5	\mathtt{UPL}	Nt P-Forb	RUE ANEMONE
ANTPLA	3 Antennaria plantaginifolia	5	UPL	Nt P-Forb	PUSSY TOES
APOSIB	2 Apocynum sibiricum		FAC+	Nt P-Forb	PRAIRIE INDIAN HEMP
AQUCAN	6 Aquilegia Canadensis	1	FAC-	Nt P-Forb	WILD COLUMBINE
ARALYR	5 Arabis lyrata	4	FACU-	Nt B-Forb	SAND CRESS
ARANUD	8 Aralia nudicaulis		FACU	Nt Shrub	WILD SARSAPARILLA
ARTCAU	5 Artemisia caudata	5	UPL	Nt B-Forb	BEACH WORMWOOD
ASCSYR	0 Asclepias syriaca		UPL	Nt P-Forb	COMMON MILKWEED
ASPOFF	O ASPARAGUS OFFICINALIS	3	FACU	Ad P-Forb	ASPARAGUS
ASTDUM	5 Aster dumosus	- 1.	FAC+	Nt P-Forb	RICE-BUTTON ASTER
ASTLAE	9 Aster laevis		UPL	Nt P-Forb	SMOOTH BLUE ASTER
ASTLAT	4 Aster lateriflorus		FACW-	Nt P-Forb	SIDE-FLOWERING ASTER
ASTNOV	4 Aster novae-angliae	-3	FACW	Nt P-Forb	NEW ENGLAND ASTER
ASTPIL	0 Aster pilosus	2	FACU+	Nt P-Forb	HAIRY ASTER
ASTPRA	9 Aster praealtus	-5	[OBL]	Nt P-Forb	WILLOW ASTER
ASTSAS	5 Aster sagittifolius	5	\mathtt{UPL}	Nt P-Forb	ARROW-LEAVED ASTER
ASTSIS	3 Aster simplex	- 5	OBL	Nt P-Forb	PANICLED ASTER

	e e			
ASTUMB	9 Aster umbellatus	-3 FACW	Nt P-Forb	FLAT-TOP ASTER
BARVUL	O BARBAREA VULGARIS	0 FAC	Ad B-Forb	YELLOW ROCKET
BROJAP	0 BROMUS JAPONICUS	3 FACU	Ad A-Grass	JAPANESE CHESS
BROTEC	0 BROMUS TECTORUM	5 UPL	Ad A-Grass	DOWNY BROME
CALCAN	3 Calamagrostis canadensis	-5 OBL	Nt P-Grass	BLUE JOINT GRASS
CARPEN	4 Cardamine pensylvanica	-4 FACW+	Nt B-Forb	PENNSYLVANIA BITTER CRESS
CXMUHL	5 Carex muhlenbergii	5 UPL	Nt P-Sedge	SAND BRACTED SEDGE
CXPELL	4 Carex pellita		Nt P-Sedge	
	- · · · · · · · · · · · · · · · · · · ·	-5 OBL	_	BROAD-LEAVED WOOLLY SEDGE
CXPENS	5 Carex pensylvanica	5 UPL	Nt P-Sedge	COMMON OAK SEDGE
CXSICC	10 Carex siccata	-5 OBL	Nt P-Sedge	RUNNING SAVANNA SEDGE
CATSPE	O CATALPA SPECIOSA	3 FACU	Ad Tree	HARDY CATALPA
CELOCC	3 Celtis occidentalis	1 FAC-	Nt Tree	HACKBERRY
CERNUT	0 Cerastium nutans	2 FACU+	Nt A-Forb	NODDING CHICKWEED
CICINT	O CICHORIUM INTYBUS	5 UPL	Ad P-Forb	CHICORY
CINARU	5 Cinna arundinacea	-3 FACW	Nt P-Grass	COMMON WOOD REED
CIRLUC	l Circaea l. canadensis	3 FACU	Nt P-Forb	ENCHANTER'S NIGHTSHADE
CIRDIS	2 Cirsium discolor	5 UPL	Nt B-Forb	PASTURE THISTLE
COMUMB	7 Comandra umbellata	3 FACU	Nt P-Forb	FALSE TOADFLAX
CONSEP	1 Convolvulus sepium	0 FAC	Nt P-Forb	HEDGE BINDWEED
CORLAN	5 Coreopsis lanceolata	3 FACU	Nt P-Forb	SAND COREOPSIS
CORPAL	6 Coreopsis palmata	5 UPL	Nt P-Forb	PRAIRIE COREOPSIS
CORTRP	5 Coreopsis tripteris	0 FAC	Nt P-Forb	TALL COREOPSIS
CORRAC	1 Cornus racemosa	-2 FACW-	Nt Shrub	GRAY DOGWOOD
CORSTO	6 Cornus stolonifera	-3 FACW	Nt Shrub	RED-OSIER DOGWOOD
CRYCAN	2 Cryptotaenia canadensis	0 FAC	Nt P-Forb	HONEWORT
	0 DAUCUS CAROTA	5 UPL		
DAUCAR	· · · · · · · · · · · · · · · · · · ·	-	Ad B-Forb	QUEEN ANNE'S LACE
DESGLU	5 Desmodium glutinosum	5 UPL	Nt P-Forb	POINTED TICK TREFOIL
DIPLAC	0 DIPSACUS LACINIATUS	5 UPL	Ad B-Forb	CUT-LEAVED TEASEL
ELYCAN	4 Elymus canadensis	1 FAC-	Nt P-Grass	CANADA WILD RYE
EQUHYE	3 Equisetum hyemale	-2 FACW-	Cryptogam	TALL SCOURING RUSH
ERASPE	3 Eragrostis spectabilis	5 UPL	Nt P-Grass	PURPLE LOVE GRASS
ERIANS	0 Erigeron annuus	1 FAC-	Nt B-Forb	ANNUAL FLEABANE
ERICAN	0 Erigeron canadensis	1 FAC-	Nt A-Forb	HORSEWEED
ERIPHI	4 Erigeron philadelphicus	-3 FACW	Nt P-Forb	MARSH FLEABANE
EUOEUR	0 EUONYMUS EUROPAEUS	5 U₽L	Ad Shrub	EUROPEAN SPINDLE TREE
EUOOBO	7 Euonymus obovatus	5 UPL	Nt Shrub	RUNNING STRAWBERRY BUSH
EUPALT	0 Eupatorium altissimum	3 [FACU]	Nt P-Forb	TALL BONESET
EUPPUR	7 Eupatorium purpureum	5 UPL	Nt P-Forb	PURPLE JOE PYE WEED
EUPRUG	4 Eupatorium rugosum	5 UPL	Nt P-Forb	WHITE SNAKEROOT
EUPSEM	-	-1 FAC+	Nt P-Forb	
	•			LATE BONESET
EUPCOR		5 UPL	Nt P-Forb	FLOWERING SPURGE
FRAVEA	8 Fragaria vesca americana	5 UPL	Nt P-Forb	HILLSIDE STRAWBERRY
FRAVIR	1 Fragaria virginiana	1 FAC-	Nt P-Forb	WILD STRAWBERRY
FRAPES	1 Fraxinus pen. subintegerri		Nt Tree	GREEN ASH
GALCIH	7 Galium c. hypomalacum	5 [UPL]	Nt P-Forb	HAIRY WILD LICORICE
GALPIL	10 Galium pilosum	5 UPL	Nt P-Forb	HAIRY BEDSTRAW
GERMAC	4 Geranium maculatum	5 [UPL]	Nt P-Forb	WILD GERANIUM
GEUCAN	1 Geum canadense	0 FAC	Nt P-Forb	WOOD AVENS
GLEHED	O GLECHOMA HEDERACEA	3 FACU	Ad P-Forb	CREEPING CHARLIE
GLETRI	2 Gleditsia triacanthos	0 FAC	Nt Tree	HONEY LOCUST
HAMVIR	8 Hamamelis virginiana	3 FACU	Nt Shrub	WITCH HAZEL
HELDIV	5 Helianthus divaricatus	5 UPL	Nt P-Forb	WOODLAND SUNFLOWER
IRIFLA	0 IRIS FLAVESCENS	5 UPL	Ad P-Forb	PALE YELLOW IRIS
LAMPUR	0 LAMIUM PURPUREUM	5 UPL	Ad A-Forb	PURPLE DEAD NETTLE
LEOCAR	0 LEONURUS CARDIACA	5 UPL	Ad P-Forb	MOTHERWORT
LEPCAM	0 LEPIDIUM CAMPESTRE	5 UPL	Ad B-Forb	FIELD CRESS
LESCAP	4 Lespedeza capitata	3 FACU	Nt P-Forb	ROUND-HEADED BUSH CLOVER
LILMIC	6 Lilium michiganense	-1 FAC+	Nt P-Forb	TURK'S CAP LILY
LITCRO	8 Lithospermum croceum	5 UPL	Nt P-Forb	HAIRY PUCCOON
LONMAA	0 LONICERA MAACKII	5 UPL	Ad Shrub	AMUR HONEYSUCKLE
LONTAT	0 LONICERA TATARICA	5 [UPL]	Ad Shrub	TARTARIAN HONEYSUCKLE
LUPPEO	7 Lupinus p. occidentalis	5 UPL	Nt P-Forb	WILD LUPINE
LYCALB	0 LYCHNIS ALBA	5 UPL	Ad A-Forb	WHITE CAMPION
MAICAI	8 Maianthemum c. interius	5 [UPL]	Nt P-Forb	Maianthemum c. interius
MALNEG	O MALVA NEGLECTA	5 UPL	Ad B-Forb	COMMON MALLOW
MELLOF	0 MELILOTUS OFFICINALIS	3 FACU	Ad B-Forb	YELLOW SWEET CLOVER
MONFIS	4 Monarda fistulosa	3 FACU	Nt P-Forb	WILD BERGAMOT
MONPUN	5 Monarda punctata	5 UPL	Nt P-Forb	HORSE MINT
MORALB	0 MORUS ALBA	0 FAC	Ad Tree	WHITE MULBERRY
NEPCAT	O NEPETA CATARIA	1 FAC-	Ad 11ee Ad P-Forb	CATNIP
	0 Oenothera biennis			
OENBIE		3 FACU		COMMON EVENING PRIMROSE
OSMCLO	3 Osmorhiza claytonii	4 FACU~	Nt P-Forb	HAIRY SWEET CICELY
OSMRES	8 Osmunda r. spectabilis	-5 OBL	Cryptogam	ROYAL FERN

	0 Oxalis europaea	3 FACU	Nt P-Forb	TALL WOOD SORREL
OXAEUR PANCA P	1 Panicum capillare	0 FAC	Nt A-Grass	OLD WITCH GRASS
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PANLAT	5 Panicum latifolium	3 FACU		BROAD-LEAVED PANIC GRASS
PANVIR	5 Panicum virgatum	-1 FAC+	Nt P-Grass	SWITCH GRASS
PARQUI	2 Parthenocissus quinquefo		Nt W-Vine	VIRGINIA CREEPER
PHYAME	1 Phytolacca americana	1 FAC-	Nt P-Forb	POKEWEED
PODPEL	4 Podophyllum peltatum	3 FACU	Nt P-Forb	MAY APPLE
POLCAL	3 Polygonatum canaliculatu	ım 3 FACU	Nt P-Forb	SMOOTH SOLOMON'S SEAL
POPDEL	2 Populus deltoides	-1 FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4 Populus tremuloides	0 FAC	Nt Tree	QUAKING ASPEN
POTSIS	4 Potentilla simplex	4 FACU-	Nt P-Forb	COMMON CINQUEFOIL
PREALB	5 Prenanthes alba	3 FACU	Nt P-Forb	LION'S FOOT
PREALT	8 Prenanthes altissima	3 FACU	Nt P-Forb	
				TALL WHITE LETTUCE
PRUSER	1 Prunus serotina	3 FACU	Nt Tree	WILD BLACK CHERRY
PRUVIR	3 Prunus virginiana	3 [FACU]	Nt Shrub	CHOKE CHERRY
PTEAQL	5 Pteridium a. latiusculum		Cryptogam	BRACKEN FERN
QUEALB	5 Quercus alba	0 FAC	Nt Tree	WHITE OAK
QUEMUH	8 Quercus muhlenbergii	5 UPL	Nt Tree	CHINQUAPIN OAK
QUEVEL	6 Quercus velutina	5 UPL	Nt Tree	BLACK OAK
RANABO	0 Ranunculus abortivus	-2 FACW-	Nt A-Forb	SMALL-FLOWERED BUTTERCUP
RHUGLA	1 Rhus glabra	5 UPL	Nt Shrub	SMOOTH SUMAC
RHURAD	2 Rhus radicans	-1 FAC+	Nt W-Vine	POISON IVY
RHUTYP	1 Rhus typhina	5 UPL	Nt Tree	STAGHORN SUMAC
RIBCYN	5 Ribes cynosbati	5 UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY
ROBPSE	O ROBINIA PSEUDOACACIA	4 FACU-	Ad Tree	BLACK LOCUST
ROSCAR	5 Rosa carolina	4 FACU-	Nt Shrub	PASTURE ROSE
ROSMUL	0 ROSA MULTIFLORA	3 FACU	Ad Shrub	MULTIFLORA ROSE
${ t RUBALL}$	3 Rubus allegheniensis	2 FACU+	Nt Shrub	COMMON BLACKBERRY
RUBFLA	3 Rubus flagellaris	4 FACU-	Nt Shrub	COMMON DEWBERRY
RUBOCC	2 Rubus occidentalis	5 UPL	Nt Shrub	BLACK RASPBERRY
RUMCRI	0 RUMEX CRISPUS	-1 FAC+	Ad P-Forb	CURLY DOCK
SALDIS	2 Salix discolor	-3 FACW	Nt Shrub	PUSSY WILLOW
SAMCAN	1 Sambucus canadensis	-2 FACW-	Nt Shrub	ELDERBERRY
SANGRE	2 Sanicula gregaria	-1 FAC+	Nt P-Forb	CLUSTERED BLACK SNAKEROOT
	0 SAPONARIA OFFICINALIS		Ad P-Forb	
SAPOFF		3 FACU		BOUNCING BET
SASALB	3 Sassafras albidum	3 FACU	Nt Tree	SASSAFRAS
SENPAU	6 Senecio pauperculus	-1 FAC+	Nt P-Forb	BALSAM RAGWORT
SETGLA	0 SETARIA GLAUCA	0 FAC	Ad A-Grass	YELLOW FOXTAIL
SMIRAC	3 Smilacina racemosa	3 FACU 1	Nt P-Forb FE	ATHERY FALSE SOLOMON'S SEAL
SMISTE	5 Smilacina stellata	1 FAC- 1	Nt P-Forb ST	ARRY FALSE SOLOMON'S SEAL
ついてつエロ				DEDICHT CARRION DIOMER
SMIECI	5 Smilax ecirrhata	5 UPL	Nt P-Forb	OFRIGHT CARRION FLOWER
SMIECI	5 Smilax ecirrhata 5 Smilax t. hispida	5 UPL 5 UPL		UPRIGHT CARRION FLOWER BRISTLY CAT BRIER
SMIECI SMITAH	5 Smilax t. hispida	5 UPL	Nt W-Vine	BRISTLY CAT BRIER
SMIECI SMITAH SOLALT	5 Smilax t. hispida 1 Solidago altissima	5 UPL 3 FACU	Nt W-Vine Nt P-Forb	BRISTLY CAT BRIER TALL GOLDENROD
SMIECI SMITAH SOLALT SOLGIG	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea	5 UPL 3 FACU -3 FACW	Nt W-Vine Nt P-Forb Nt P-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD
SMIECI SMITAH SOLALT SOLGIG SOLSPE	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa	5 UPL 3 FACU -3 FACW 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Forb Nt P-Grass	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED STISPA	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Nt P-Grass	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 3 FACU 3 FACU	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Nt P-Grass Ad Shrub Ad P-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 3 FACU 5 UPL 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Ad Shrub Ad P-Forb Ad A-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 3 FACU 5 UPL 2 FACU+	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Ad P-Forb Ad A-Forb Nt P-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRADUB	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 5 UPL 2 FACU+ 5 UPL 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Ad Shrub Ad P-Forb Ad A-Forb Ad B-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRADUB TRAPRA	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS 0 TRAGOPOGON PRATENSIS	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 3 FACU 5 UPL 5 UPL 2 FACU+ 5 UPL 5 UPL 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Ad P-Forb Ad A-Forb Ad P-Forb Ad B-Forb Ad B-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD COMMON GOAT'S BEARD
SMIECI SMITAH SOLALT SOLGIG SOLS PE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRADUB TRAPRA ULMPUM	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS 0 TRAGOPOGON PRATENSIS 0 ULMUS PUMILA	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 5 TACU 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Ad P-Forb Ad P-Forb Ad P-Forb Ad R-Forb Ad R-Forb Ad R-Forb Ad B-Forb Ad B-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD COMMON GOAT'S BEARD SIBERIAN ELM
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRAOHI TRADUB TRAPRA ULMPUM VERTHA	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS 0 TRAGOPOGON PRATENSIS 0 ULMUS PUMILA 0 VERBASCUM THAPSUS	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 3 FACU 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Ad P-Forb Ad P-Forb Ad P-Forb Ad P-Forb Ad B-Forb Ad B-Forb Ad B-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD COMMON GOAT'S BEARD SIBERIAN ELM COMMON MULLEIN
SMIECI SMITAH SOLALT SOLGIG SOLS PE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRADUB TRADUB TRAPRA ULMPUM VERTHA	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS 0 TRAGOPOGON PRATENSIS 0 ULMUS PUMILA 0 VERBASCUM THAPSUS 4 Verbena hastata	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 5 UPL 2 FACU+ 5 UPL 5 UPL 5 UPL 5 UPL 5 UPL 5 UPL 6 UPL 7 UPL 7 UPL 7 UPL 7 UPL 7 UPL 7 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Ad A-Forb Nt P-Grass Ad Shrub Ad P-Forb Ad A-Forb Ad P-Forb Ad B-Forb Ad B-Forb Ad B-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD COMMON GOAT'S BEARD SIBERIAN ELM COMMON MULLEIN BLUE VERVAIN
SMIECI SMITAH SOLALT SOLGIG SOLS PE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRAOHI TRADUB TRAPRA ULMPUM VERTHA VERHAS VERSTR	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS 0 TRAGOPOGON PRATENSIS 0 ULMUS PUMILA 0 VERBASCUM THAPSUS 4 Verbena hastata 4 Verbena stricta	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 5 UPL 2 FACU+ 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Nt P-Grass Ad Shrub Ad P-Forb Ad A-Forb Ad B-Forb Ad B-Forb Ad B-Forb Ad B-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD COMMON GOAT'S BEARD SIBERIAN ELM COMMON MULLEIN BLUE VERVAIN HOARY VERVAIN
SMIECI SMITAH SOLALT SOLGIG SOLS PE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRADUB TRADUB TRAPRA ULMPUM VERTHA	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS 0 TRAGOPOGON PRATENSIS 0 ULMUS PUMILA 0 VERBASCUM THAPSUS 4 Verbena hastata	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 5 UPL 2 FACU+ 5 UPL 5 UPL 5 UPL 5 UPL 5 UPL 5 UPL 6 UPL 7 UPL 7 UPL 7 UPL 7 UPL 7 UPL 7 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Ad A-Forb Nt P-Grass Ad Shrub Ad P-Forb Ad A-Forb Ad P-Forb Ad B-Forb Ad B-Forb Ad B-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD COMMON GOAT'S BEARD SIBERIAN ELM COMMON MULLEIN BLUE VERVAIN
SMIECI SMITAH SOLALT SOLGIG SOLS PE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRAOHI TRADUB TRAPRA ULMPUM VERTHA VERHAS VERSTR	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS 0 TRAGOPOGON PRATENSIS 0 ULMUS PUMILA 0 VERBASCUM THAPSUS 4 Verbena hastata 4 Verbena stricta	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 5 UPL 2 FACU+ 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Nt P-Grass Ad Shrub Ad P-Forb Ad A-Forb Ad B-Forb Ad B-Forb Ad B-Forb Ad B-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD COMMON GOAT'S BEARD SIBERIAN ELM COMMON MULLEIN BLUE VERVAIN HOARY VERVAIN
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRADUB TRAPRA ULMPUM VERTHA VERTHA VERHAS VERSTR	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS 0 TRAGOPOGON PRATENSIS 0 ULMUS PUMILA 0 VERBASCUM THAPSUS 4 Verbena hastata 4 Verbena stricta 5 Verbena urticifolia	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 5 UPL 2 FACU+ 5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Grass Ad A-Forb Ad A-Forb Ad P-Forb Ad A-Forb Ad B-Forb Ad B-Forb Ad B-Forb Ad B-Forb Ad Tree Ad B-Forb Nt P-Forb Nt P-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWEET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD COMMON GOAT'S BEARD SIBERIAN ELM COMMON MULLEIN BLUE VERVAIN HOARY VERVAIN
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STIAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRADUB TRAPRA ULMPUM VERTHA VERTHA VERTHA VERSTR VERSTR VIBRAF VITRIP	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS 0 TRAGOPOGON PRATENSIS 0 ULMUS PUMILA 0 VERBASCUM THAPSUS 4 Verbena hastata 4 Verbena stricta 5 Verbena urticifolia 5 Viburnum rafinesquianum 2 Vitis riparia	5 UPL 3 FACU -3 FACU 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL 3 FACU 5 UPL 2 FACU+ 5 UPL -4 FACW+ 5 UPL 5 UPL -4 FACW+ 5 UPL 5 UPL -5 UPL -7 FACW-	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Grass Ad A-Forb Ad A-Forb Ad A-Forb Ad B-Forb Ad B-Forb Ad B-Forb Ad Tree Ad B-Forb Nt P-Forb Nt P-Forb Nt P-Forb Nt P-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD COMMON GOAT'S BEARD SIBERIAN ELM COMMON MULLEIN BLUE VERVAIN HOARY VERVAIN HAIRY WHITE VERVAIN DOWNY ARROW-WOOD RIVERBANK GRAPE
SMIECI SMITAH SOLALT SOLGIG SOLSPE SORNUT SPIALB STAPAH STEMED STISPA SYMORB TAROFF THLARV TRAOHI TRADUB TRAPRA ULMPUM VERTHA VERTHA VERTHA VERTER VERURU VIBRAF	5 Smilax t. hispida 1 Solidago altissima 4 Solidago gigantea 7 Solidago speciosa 5 Sorghastrum nutans 7 Spiraea alba 5 Stachys p. homotricha 0 STELLARIA MEDIA 7 Stipa spartea 0 SYMPHORICARPOS ORBICULA 0 TARAXACUM OFFICINALE 0 THLASPI ARVENSE 2 Tradescantia ohiensis 0 TRAGOPOGON DUBIUS 0 TRAGOPOGON PRATENSIS 0 ULMUS PUMILA 0 VERBASCUM THAPSUS 4 Verbena hastata 4 Verbena stricta 5 Verbena urticifolia 5 Viburnum rafinesquianum	5 UPL 3 FACU -3 FACW 5 UPL 2 FACU+ -4 FACW+ -5 OBL 3 FACU 5 UPL TUS 3 FACU 5 UPL 2 FACU+ 5 UPL 5 UPL 5 UPL 5 UPL -4 FACW+ 5 UPL 5 UPL 5 UPL -5 UPL	Nt W-Vine Nt P-Forb Nt P-Forb Nt P-Grass Nt Shrub Nt P-Forb Ad A-Forb Ad P-Grass Ad Shrub Ad P-Forb Ad B-Forb Ad B-Forb Ad B-Forb Ad B-Forb Ad B-Forb Ad Tree Ad B-Forb Nt P-Forb Nt P-Forb Nt P-Forb Nt P-Forb	BRISTLY CAT BRIER TALL GOLDENROD LATE GOLDENROD SHOWY GOLDENROD INDIAN GRASS MEADOWSWET WOUNDWORT COMMON CHICKWEED PORCUPINE GRASS CORALBERRY COMMON DANDELION PENNY CRESS COMMON SPIDERWORT SAND GOAT'S BEARD COMMON GOAT'S BEARD SIBERIAN ELM COMMON MULLEIN BLUE VERVAIN HOARY VERVAIN HAIRY WHITE VERVAIN DOWNY ARROW-WOOD

No primary or secondary indicators of wetland hydrology were observed at any of the data points within Pilot Section 1, and all locations failed the hydrology criterion.

The soil profile at Data Point 1 was classified as Morocco loamy fine sand. An A horizon of very dark grayish brown (10YR 3/2) sand was found from 0 to 3 inches in depth. Below this, a Bw1 horizon of light brownish gray (10YR 6/2) sand was observed from 3 to 5 inches in depth. A Bw2 horizon of pale brown (10YR 6/3) sand was found from 5 to 10 inches in depth. This horizon contained common faint light yellowish brown (10YR 6/4) redoximorphic features. Finally, a Bw3 horizon of very pale brown (10YR 7/3) sand was observed from 10 to 34 inches in depth. This horizon contained a few distinct dark yellowish brown (10YR 4/6) redoximorphic features.

The soil profiles at Data Points 2 and 4 were classified as Morocco loamy fine sand, taxadjunct. The profile description from Data Point 2 is used here as representative for a typical Morocco, taxadjunct profile within Pilot Section 1:

An A horizon of black (10YR 2/1) loam was found from 0 to 5 inches in depth. Below this, a Bw1 horizon of strong brown (7.5YR 4/6) sand was observed from 5 to 7 inches in depth. A Bw2 horizon of yellowish brown (10YR 5/4) sand was found from 7 to 21 inches in depth. This horizon contained common distinct dark yellowish brown (10YR 4/6) redoximorphic features. Finally, a BC horizon of very pale brown (10YR 7/3) sand was found below a depth of 21 inches.

The soil profile at Data Point 3 was classified as Oakville fine sand. An A horizon of black (10YR 2/1) loamy sand was found from 0 to 3 inches in depth. Below this, a Bw horizon of brownish yellow (10YR 6/6) sand was observed from 3 to 25 inches in depth. Finally, a BC horizon of light yellowish brown (10YR 6/4) sand was found from 25 to 28 inches in depth.

None of the soil profiles within Pilot Section 1 exhibited hydric soil field indicators, and all locations failed the soils criterion.

None of the three wetland criteria was satisfied at any location within Pilot Section 1, and no location within Pilot Section 1 qualifies as wetland. However, Pilot Section 1 is remnant Black Oak savanna, the upland portion of a remnant dune and dry swale complex, so this area may be under Indiana Department of Natural Resources jurisdiction as a potentially protected habitat type. We recommend further consultation with this agency during the early design stages of any proposed projects that include modification of this site.

PILOT SECTION 2

Area 2a - Upland
Data Points 5 and 7

Area 2a consists of an undeveloped platted subdivision, a junkyard, and a used car business located within the boundaries of the 23-acre Pilot Section 2 (Exhibit V; Photos 7, 8 and 10). The majority of Area 2a is a platted subdivision that was never developed beyond road and water main installation, as indicated by blacktopped streets and fire hydrants. Thus, no structures are present except as noted above, and no remnant foundations or other building infrastructure was observed. The dominant plant species in Area 2a are Kentucky Bluegrass (*Poa pratensis*), Quack Grass (*Agropyron repens*), Knee Grass (*Panicum dichotomiflorum*), Siberian Elm (*Ulmus pumila*), Marram Grass (*Ammophila breviligulata*), Black Cherry, Hairy Sweet Cicely, Box Elder

(Acer negundo), Garlic Mustard (Alliaria petiolata), Common Blackberry (Rubus allegheniensis), and Amur Honeysuckle (Lonicera maackii). Less than 50% of the dominant species are hydrophytic, thereby failing the vegetation criterion.

The floristic diversity of this plant community is moderate in quality (NMC = 2.9, FQI = 19.50), although the NMC and Native FQI represent a higher quality community. The presence of a few higher quality species, many represented by a single individual, skews the floristic quality data resulting in an appearance of higher floristic quality than actual conditions. This is further substantiated by the fact that thirty-one of the seventy-eight species (40%) identified during the investigation of this parcel are non-native and dominate a majority of Section 2 in terms of abundance and cover, thus indicating a higher level of disruption than revealed by the floristic quality indices. The floristic quality calculations and plant species inventory for Area 2a are provided below.

FLORISTIC QUALITY DATA	Native	47	60.3%	Adventive	31	39.7%
47 NATIVE SPECIES	Tree	5	6.4%	Tree	3	3.8%
78 Total Species	Shrub	5	6.4%	Shrub	3	3.8%
2.9 NATIVE MEAN C	W-Vine	0	0.0%	W-Vine	0	0.0%
1.7 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
19.5 NATIVE FQI	P-Forb	20	25.6%	P-Forb	7	9.0%
15.2 W/Adventives	B-Forb	3	3.8%	B-Forb	7	9.0%
1.9 NATIVE MEAN W	A-Forb	5	6.4%	A-Forb	2	2.6%
2.3 W/Adventives	P-Grass	6	7.7%	P-Grass	5	6.4%
AVG: Fac. Upland (+)	A-Grass	2	2.6%	A-Grass	4	5.1%
	P-Sedge	0	0.0%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	1	1.3%	_		

ACRONYM	C SCIENTIFIC NAME	W WETNESS	PHYSIOGNOMY	COMMON NAME
ACENEG	0 Acer negundo	-2 FACW-	Nt Tree	BOX ELDER
ACESAI	0 Acer saccharinum	-3 FACW	Nt Tree	SILVER MAPLE
AGRGRY	2 Agrimonia gryposepala	2 FACU+	Nt P-Forb	TALL AGRIMONY
AGRREP	0 AGROPYRON REPENS	3 FACU	Ad P-Grass	QUACK GRASS
AGRALA	0 AGROSTIS ALBA	-3 FACW	Ad P-Grass	REDTOP
ALLPET	0 ALLIARIA PETIOLATA 7 Allium tricoccum	0 FAC	Ad B-Forb	GARLIC MUSTARD
ALLTRT	7 Allium tricoccum	3 FACU	Nt P-Forb	
AMBARE	0 Ambrosia a. elatior	3 FACU	Nt A-Forb	COMMON RAGWEED
AMBTRI	0 Ambrosia trifida	-1 FAC+	Nt A-Forb	GIANT RAGWEED
AMMBRE	7 Ammophila breviligulata	5 UPL	Nt P-Grass	MARRAM GRASS
APOSIB	2 Apocynum sibiricum	-1 FAC+	Nt P-Forb	PRAIRIE INDIAN HEMP
ARCMIN	O ARCTIUM MINUS	5 UPL	Ad B-Forb	COMMON BURDOCK
ARTCAU	5 Artemisia caudata		Nt B-Forb	BEACH WORMWOOD
ASCSYR	0 Asclepias syriaca	5 UPL	Nt P-Forb	COMMON MILKWEED
ASTDUM	5 Aster dumosus	-1 FAC+	Nt P-Forb	RICE-BUTTON ASTER
ASTERI	5 Aster ericoides	4 FACU-	Nt P-Forb	HEATH ASTER
ASTPIL	0 Aster pilosus	2 FACU+	Nt P-Forb	HAIRY ASTER
BROJAP	0 BROMUS JAPONICUS	3 FACU	Ad A-Grass	JAPANESE CHESS
BROTEC	0 BROMUS TECTORUM	5 UPL	Ad A-Grass	DOWNY BROME
CHEALB	O CHENOPODIUM ALBUM	1 FAC-	Ad A-Forb	LAMB'S QUARTERS
DACGLO	0 DACTYLIS GLOMERATA	3 FACU	Ad P-Grass	ORCHARD GRASS
DAUCAR	0 DAUCUS CAROTA	5 UPL	Ad B-Forb	QUEEN ANNE'S LACE
ERASPE	3 Eragrostis spectabilis	5 UPL	Nt P-Grass	PURPLE LOVE GRASS
ERIANS	0 Erigeron annuus	1 FAC-	Nt B-Forb	ANNUAL FLEABANE
ERICAN	O Erigeron canadensis	1 FAC-	Nt A-Forb	
EUOOBO	7 Euonymus obovatus	5 UPL	Nt Shrub	RUNNING STRAWBERRY BUSH
EUPALT	0 Eupatorium altissimum	3 [FACU]	Nt P-Forb	TALL BONESET
FESELA	O DACTYLIS GLOMERATA O DAUCUS CAROTA Eragrostis spectabilis Cerigeron annuus Erigeron canadensis Euonymus obovatus Eupatorium altissimum FESTUCA ELATIOR Galium aparine Helianthus divaricatus IRIS FLAVESCENS LEONURUS CARDIACA LEPIDIUM CAMPESTRE	2 FACU+	Ad P-Grass	TALL FESCUE
GALAPA	1 Galium aparine	3 FACU	Nt A-Forb	ANNUAL BEDSTRAW
HELDIV	5 Helianthus divaricatus	5 UPL	Nt P-Forb	WOODLAND SUNFLOWER
IRIFLA	0 IRIS FLAVESCENS	5 UPL	Ad P-Forb	PALE YELLOW IRIS
LEOCAR	0 LEONURUS CARDIACA	5 UPL	Ad P-Forb	MOTHERWORT
LEPCAM	0 LEPIDIUM CAMPESTRE	5 UPL	Ad B-Forb	FIELD CRESS
LESCAP	4 Lespedeza capitata 0 LONICERA MAACKII	3 FACU	Nt P-Forb	ROUND-HEADED BUSH CLOVER
LONMAA	0 LONICERA MAACKII	5 UPL	Ad Shrub	AMUR HONEYSUCKLE
LUPPEO	7 Lupinus p. occidentalis	5 UPL	Nt P-Forb	WILD LUPINE

MALPUM	ο	MALUS PUMILA		=	UPL		Δd	Tree	APPLE	
OENBIE		Oenothera biennis			FACU		_	B-Forb		EVENING PRIMROSE
OSMCLO		Osmorhiza claytonii		-	FACU-			P-Forb		WEET CICELY
PANCAP		Panicum capillare			FAC			A-Grass		CH GRASS
PANDII		Panicum dichotomiflorum			FACW-			A-Grass	-	
PANLAT		Panicum latifolium			FACU			P-Grass		EAVED PANIC GRASS
PANVIR					FAC+			P-Grass		
PHYAME	1	Phytolacca americana		-	FAC-			P-Forb	POKEWEE	
PLALAN	0	Panicum virgatum Phytolacca americana PLANTAGO LANCEOLATA			FAC			P-Forb	-	PLANTAIN
PLAMAJ	0	PLANTAGO MAJOR			FAC+			P-Forb		PLANTAIN
POAPRA	0	POA PRATENSIS			FAC-			P-Grass		Y BLUE GRASS
POLLAP	0	Polygonum lapathifolium			FACW+			A-Forb	HEARTSE	
POPALB		POPULUS ALBA			UPL			Tree		
POPDEL	2	Populus deltoides		- 1	FAC+			Tree		COTTONWOOD
PRUSER		Prunus serotina		3	FACU					ACK CHERRY
PRUVIR	3	Prunus virginiana		3	[FACU]	1	Nt	Tree Shrub	CHOKE C	
PTEAOL		Pteridium a. latiusculum			FACU	-		ptogam		
QUEVEL		Quercus velutina			UPL		Nt.	Tree	BLACK O	
RIBCYN		Ribes cynosbati					Nt.	Shrub	PRICKLY	WILD GOOSEBERRY
ROSMUL		ROSA MULTIFLORA		3	UPL FACU		Ad	Shrub Shrub	MULTIFI	ORA ROSE
RUBALL		Rubus allegheniensis		2	FACU+			Shrub		BLACKBERRY
RUBOCC		Rubus occidentalis			UPL			Shrub		ASPBERRY
RUMCRI	0	RUMEX CRISPUS			FAC+			P-Forb		
SANGRE	2	Sanicula gregaria		-1	FAC+			P-Forb		ED BLACK SNAKEROOT
SAPOFF	0	SAPONARIA OFFICINALIS		3	FACU			P-Forb		
SETFAB	0	Sanicula gregaria SAPONARIA OFFICINALIS SETARIA FABERI SETARIA GLAUCA			FACU+			A-Grass	•	
SETGLA	0	SETARIA GLAUCA		0	FAC		Ad	A-Grass		FOXTAIL
SMIRAC	3	Smilacina racemosa	3	FAC	U :	Νt	P-Fe			LSE SOLOMON'S SEAL
SMISTE	5	Smilacina stellata		1 F	AC-	ľ	Nt P			LSE SOLOMON'S SEAL
SOLALT	1	Solidago altissima		3	FACU		Nt	P-Forb		LDENROD
SOLSPE	7	Solidago speciosa		5	UPL		Νt	P-Forb	SHOWY G	OLDENROD
SORNUT	5	Sorghastrum nutans		2	FACU+		Νt	P-Grass		_
SPAPEC	4	Spartina pectinata		-4	FACW+		Nt	P-Grass	PRAIRIE	CORD GRASS
TAROFF		TARAXACUM OFFICINALE		3	FACU		Ad	P-Forb		DANDELION
TEUCAN	3	Teucrium canadense		-3	FACW		Νt	P-Forb	GERMAND	ER
THLARV	0	THLASPI ARVENSE		5	UPL		Ad	A-Forb	PENNY C	RESS
TRAOHI	2	Tradescantia ohiensis		2	FACU+		Nt	P-Forb	COMMON	SPIDERWORT
TRADUB	0	TRAGOPOGON DUBIUS		5	UPL		Ad	B-Forb	SAND GO	AT'S BEARD
TRAPRA	0	TRAGOPOGON PRATENSIS		5	UPL		Ad	B-Forb		GOAT'S BEARD
ULMPUM	0	ULMUS PUMILA			UPL			Tree	SIBERIA	·
VERTHA	0	VERBASCUM THAPSUS		5	UPL		Ad	B-Forb		MULLEIN
VIBOPU	C	VIBURNUM OPULUS		3 [FACU]	2	Ad s	hrub		HIGHBUSH CRANBERRY

No primary or secondary indicators of wetland hydrology were observed at Data Points 5 and 7, failing the hydrology criterion.

The soil profile at Data Point 5 was classified as Made Land, Orthents. A mixed fill horizon of pale brown (10YR 6/3) sand was found from 0 to 9 inches in depth. This horizon contained a few distinct dark yellowish brown (10YR 4/6) redoximorphic features and some decomposed organic material incorporated throughout. Below this, another mixed fill horizon of very pale brown (10YR 7/3) sand was observed from 9 to 27 inches in depth. This horizon contained occasional stratified thin bands of darker colored soil.

The soil profile at Data Point 7 was classified as Granby loamy fine sand. An A horizon of black (10YR 2/1) sandy loam was found from 0 to 13 inches in depth. This horizon contained a few prominent dark brown (7.5YR 3/4) redoximorphic features. Below this, a Bg1 horizon of light brownish gray (10YR 6/2) sand was observed from 13 to 32 inches in depth. This horizon contained common distinct dark yellowish brown (10YR 4/6) redoximorphic features, and some mixing between this horizon and the A horizon above was observed. Finally, a Bg2 horizon of pale brown (10YR 6/3) sand was found from 32 to 40 inches in depth. This horizon contained common distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) redoximorphic features.

The soil profile at Data Point 5 does not exhibit any hydric soil field indicators and fails the soils criterion. The soil profile at Data Point 7, while not exhibiting any hydric soil field indicators, is classified taxonomically as being poorly drained, and the presence of redoximorphic features throughout the profile and gray subsoil colors indicates that the upper portion of the profile is saturated for at least two weeks during the growing season, thereby satisfying the soils criterion. All locations within Area 2a fail at least one of the three wetland criteria, and Area 2a does not qualify as wetland. No dune and swale features are present on Pilot Section 2 because of historic grading or sand mining activities.

Area 2b - Isolated Wooded Wetland

Data Point 6

Area 2b is an approximately 0.10-acre wooded wetland located along the southern property boundary near the southwestern comer of Pilot Section 2 (Exhibit V; Photo 9). The dominant plant species are Hairy Sweet Cicely, Common Blackberry, Clustered Black Snakeroot, Riverbank Grape, Eastern Cottonwood (*Populus deltoides*), Quaking Aspen (*Populus tremuloides*), Sawtooth Sunflower (*Helianthus grosseserratus*), and Tall Goldenrod (*Solidago altissima*). More than 50% of these dominant plant species are hydrophytic, so the vegetation criterion is satisfied.

The floristic diversity of the wetland plant community is of moderate quality (NMC = 2.80, FQI = 16.60). Due to its small size, the wetland provides limited wetland function at a low level. The floristic quality calculations and plant species inventory for Area 2b are provided below.

FLORISTIC QUALITY DATA	Native	35	81.4%	Adventive	8	18.6%
35 NATIVE SPECIES	Tree	6	14.0%	Tree	1	2.3%
43 Total Species	Shrub	4	9.3%	Shrub	2	4.7%
2.8 NATIVE MEAN C	W-Vine	1	2.3%	W-Vine	1	2.3%
2.3 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
16.6 NATIVE FQI	P-Forb	18	41.9%	P-Forb	2	4.7%
14.9 W/Adventives	B-Forb	2	4.7%	B-Forb	2	4.7%
-0.0 NATIVE MEAN W	A-Forb	2	4.7%	A-Forb	0	0.0%
0.3 W/Adventives	P-Grass	0	0.0%	P-Grass	0	0.0%
AVG: Facultative	A-Grass	0	0.0%	A-Grass	0	0.0%
•	P-Sedge	1	2.3%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	1	2.3%			

ACRONYM	C SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACENEG	0 Acer negundo	-2	FACW-	Nt Tree	BOX ELDER
ACESAI	0 Acer saccharinum	-3	FACW	Nt Tree	SILVER MAPLE
ACESAU	3 Acer saccharum	3	FACU	Nt Tree	SUGAR MAPLE
AGRGRY	2 Agrimonia gryposepala	2	FACU+	Nt P-Forb	TALL AGRIMONY
ALLPET	O ALLIARIA PETIOLATA	0	FAC	Ad B-Forb	GARLIC MUSTARD
AMBTRI	0 Ambrosia trifida	-1	FAC+	Nt A-Forb	GIANT RAGWEED
ASTDUM	5 Aster dumosus	-1	FAC+	Nt P-Forb	RICE-BUTTON ASTER
ASTLAT	4 Aster lateriflorus	-2	FACW-	Nt P-Forb	SIDE-FLOWERING ASTER
ASTPRA	9 Aster praealtus	-5	[OBL]	Nt P-Forb	WILLOW ASTER
BOTVIR	6 Botrychium virginianum	3	FACU	Cryptogam	RATTLESNAKE FERN
CXATHE	5 Carex atherodes	-5	OBL	Nt P-Sedge	HAIRY-LEAVED LAKE SEDGE
CIRLUC	1 Circaea 1. canadensis	3	FACU	Nt P-Forb	ENCHANTER'S NIGHTSHADE
CIRDIS	2 Cirsium discolor	5	UPL	Nt B-Forb	PASTURE THISTLE
GEUCAN	1 Geum canadense	0	FAC	Nt P-Forb	WOOD AVENS
GEULAT	2 Geum 1. trichocarpum	-3	FACW	Nt P-Forb	ROUGH AVENS
GLEHED	O GLECHOMA HEDERACEA		FACU	Ad P-Forb	CREEPING CHARLIE
HACVIR	0 Hackelia virginiana	1	FAC-	Nt B-Forb	STICKSEED
HELDIV	5 Helianthus divaricatus	5	UPL	Nt P-Forb	WOODLAND SUNFLOWER
HELGRO	2 Helianthus grosseserratus	-2	FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER

HEMFUL	0	HEMEROCALLIS FULVA	5	UPL	Αċ	l P-Forb	ORANGE DAY LILY
IRIVIS	5	Iris v. shrevei	-5	OBL	Nt	P-Forb	BLUE FLAG
LACSER	0	LACTUCA SERRIOLA	0	FAC	Αċ	l B-Forb	PRICKLY LETTUCE
LONMAA	0	LONICERA MAACKII	5	UPL	Αċ	l Shrub	AMUR HONEYSUCKLE
MORALB	0	MORUS ALBA	0	FAC	ΑĊ	l Tree	WHITE MULBERRY
OSMCLO	3	Osmorhiza claytonii	4	FACU-	Nt	P-Forb	HAIRY SWEET CICELY
PHYAME	1	Phytolacca americana	1	FAC-	Nt	P-Forb	POKEWEED
POLCAL	3	Polygonatum canaliculatum	3	FACU	Nt	P-Forb	SMOOTH SOLOMON'S SEAL
POLLAP	0	Polygonum lapathifolium	-4	FACW+	Nt	: A-Forb	HEARTSEASE
POPDEL		Populus deltoides	-1	FAC+	Nt	Tree	EASTERN COTTONWOOD
POPTRE	4	Populus tremuloides	0	FAC	Nt	Tree	QUAKING ASPEN
PRUSER	1	Prunus serotina	3	FACU	Nt	Tree	WILD BLACK CHERRY
RIBAME	7	Ribes americanum	- 3	FACW	Nt	Shrub	WILD BLACK CURRANT
RUBALL		Rubus allegheniensis	2	FACU+	Nt	Shrub	COMMON BLACKBERRY
RUBOCC	2	Rubus occidentalis	5	\mathtt{UPL}	Nt	Shrub	BLACK RASPBERRY
SAMCAN	1		~2	FACW-	Nt	Shrub	ELDERBERRY
SANGRE	2	Sanicula gregaria	-1	FAC+	Nt	: P-Forb	CLUSTERED BLACK SNAKEROOT
SMIECI	5		5	UPL	Nt	P-Forb	UPRIGHT CARRION FLOWER
SOLDUL	0	SOLANUM DULCAMARA	0	FAC	Ac	l W-Vine	BITTERSWEET NIGHTSHADE
SOLALT	1	·	3	FACU	Nt	P-Forb	TALL GOLDENROD
SOLGIG		Solidago gigantea	- 3	FACW	Nt	P-Forb	LATE GOLDENROD
STATEH	5	Stachys t. hispida		FACW+		P-Forb	MARSH HEDGE NETTLE
VIBOPU	0		3	[FACU]	A	d Shrub	EUROPEAN HIGHBUSH CRANBERRY
VITRIP	2	Vitis riparia	-2	FACW-	Nt	W-Vine	RIVERBANK GRAPE

Primary and secondary indicators of wetland hydrology, such as a depressional landscape position and buttressed tree trunks, were observed within Area 2b, satisfying the hydrology criterion.

The soil profile at Data Point 6 was classified as Granby loamy fine sand. An A horizon of black (10YR 2/1) loamy sand was found from 0 to 11 inches in depth. Below this, a Bg horizon of light brownish gray (10YR 6/2) sand was observed from 11 to 21 inches in depth. This horizon contained common prominent dark yellowish brown (10YR 4/6) redoximorphic features. Finally, a C horizon of light yellowish brown (10YR 6/4) sand was found from 21 to 39 inches in depth. This horizon contained common distinct dark yellowish brown (10YR 4/6) redoximorphic features, and was stratified with layers of black (10YR 2/1) and light gray (10YR 7/1) colored soil material.

The soil profile at Data Point 6, while not exhibiting any hydric soil field indicators, is classified taxonomically as being poorly drained, and the presence of redoximorphic features throughout the profile and gray subsoil colors indicates that the upper portion of the profile is saturated for at least two weeks during the growing season, thereby satisfying the soils criterion.

All three wetland criteria are satisfied at Data Point 6, so Area 2b qualifies as a wetland. The location in a closed depression without a surface water connection indicates that Area 2b is an isolated wetland. In addition, the underdeveloped nature of the vegetative community indicates the recent formation of wetland at this location. Thus, Area 2b apparently is not a remnant swale, but a wetland that developed after the physical alteration of Pilot Section 2. Because the wetland appears to be isolated, it may not be under ACOE jurisdiction, but discharges to the wetland are likely to be regulated by the DEM and may require a permit.

PILOT SECTION 3

Area 3a – Upland

Data Points 18, 19 and 21

Area 3a consists of the upland portions of the 27-acre Pilot Section 3, which generally is a severely disturbed, but undeveloped parcel that includes a junkyard (Exhibit V; Photos 11 to 13 and 15 to 17). Most of the undeveloped portion of Area 3a is uniformly covered with a mix of debris, including discarded foundry material or slag and shredded plastic and rubber. Additionally, scattered debris piles are present in Area 3a. These debris piles appear to be refuse from building and street demolition, as evidenced by the bricks, concrete slabs, and asphalt visible on the surface. However, a highly degraded dry sand prairie has developed on a portion of leveled dune that likely covered the parcel at some time in the past. Several common prairie plant species were observed in this area, but overall the plant community is of low floristic quality (see FQA table below). Most of the dominant plant species in Area 3a are opportunistic, non-native species adapted to colonizing disturbed environments.

Examples of disturbed environments include areas that may have little or no topsoil, contain a buried soil, or where the soil is extremely compacted. Surface hydrology in these disturbed locations apparently prevents some plant species from successfully colonizing, but opportunistic species often thrive on the lack of competition. Consequently, many of the species that are able to survive these harsh conditions are also listed as being hydrophytic.

The dominant species are Purple Loosestrife Common Reed, Kentucky Blue Grass, White Snakeroot (Eupatorium altissima), Big Bluestem Grass (Andropogon gerardii), Pointed Tick Trefoil (Desmodium glutinosum), Eastern Cottonwood, Bushy Aster (Aster dumosus), Common Evening Primrose (Oenothera biennis), Queen Anne's Lace (Daucus carota), and Yarrow (Achillea millefolium). Less than 50% of the dominant species are hydrophytic at Data Points 19 and 21, thereby failing the vegetation criterion. Both of the dominant species are hydrophytic at Data Point 18 so the vegetation criterion is satisfied at this location. However, the remaining two criteria are not satisfied at Data Point 18, so this area is not a wetland.

Overall, the floristic diversity of the plant community is of low to moderate quality despite the high floristic quality values calculated for this area (NMC = 3.30, FQI = 24.30). Like Area 2a, a majority of Area 3a is dominated by low quality natives and non-native species. Again, the presence of a few higher quality natives skews the floristic data. Thus, Area 3a is of lower quality than the floristic data would seem to portray. The floristic quality calculations and plant species inventory are provided below.

FLORISTIC QUALITY DATA	Native	56	72.7%	Adventive	21	27.3%
56 NATIVE SPECIES	Tree	7	9.1%	Tree	1	1.3%
77 Total Species	Shrub	7	9.1%	Shrub	0	0.0%
3.3 NATIVE MEAN C	W-Vine	1	1.3%	W-Vine	0	0.0%
2.4 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
24.3 NATIVE FQI	P-Forb	27	35.1%	P-Forb	6	7.8%
20.7 W/Adventives	B-Forb	2	2.6%	B-Forb	9	11.7%
1.9 NATIVE MEAN W	A-Forb	1	1.3%	A-Forb	2	2.6%
2.0 W/Adventives	P-Grass	6	7.8%	P-Grass	2	2.6%
AVG: Fac. Upland (+)	A-Grass	1	1.3%	A-Grass	1	1.3%
	P-Sedge	3	3.9%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	1	1.3%	-		

ACRONYM	C SCIENTIFIC NAME		WETNESS		COMMON NAME
ACESAI	0 Acer saccharinum		FACW	Nt Tree	SILVER MAPLE
ACHMIL	O ACHILLEA MILLEFOLIUM		FACU	Ad P-Forb	YARROW
ANDGER	5 Andropogon gerardii		FAC-	Nt P-Grass	BIG BLUESTEM GRASS
ANDSCO	5 Andropogon scoparius	4	FACU-	Nt P-Grass	LITTLE BLUESTEM GRASS
AQUCAN	6 Aquilegia canadensis	1	FAC-	Nt P-Forb	WILD COLUMBINE
ARCMIN	0 ARCTIUM MINUS	5	UPL	Ad B-Forb	COMMON BURDOCK
ARTCAU	5 Artemisia caudata	5	UPL	Nt B-Forb	BEACH WORMWOOD
ASCSYR	0 Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED
ASTDUM	5 Aster dumosus		FAC+	Nt P-Forb	RICE-BUTTON ASTER
ASTERI	5 Aster ericoides		FACU-	Nt P-Forb	HEATH ASTER
ASTPIL	0 Aster pilosus		FACU+	Nt P-Forb	HAIRY ASTER
ASTSIS	3 Aster simplex		OBL	Nt P-Forb	PANICLED ASTER
	0 BROMUS JAPONICUS				
BROJAP			FACU	Ad A-Grass	JAPANESE CHESS
CXMUHL	5 Carex muhlenbergii		UPL	Nt P-Sedge	SAND BRACTED SEDGE
CXPENS	5 Carex pensylvanica		UPL	Nt P-Sedge	COMMON OAK SEDGE
CXVULP	2 Carex vulpinoidea		OBL	Nt P-Sedge	BROWN FOX SEDGE
CENMAC	O CENTAUREA MACULOSA	5	UPL	Ad B-Forb	SPOTTED KNAPWEED
DAUCAR	O DAUCUS CAROTA	5	UPL	Ad B-Forb	QUEEN ANNE'S LACE
DESGLU	5 Desmodium glutinosum	5	UPL	Nt P-Forb	POINTED TICK TREFOIL
ERASPE	3 Eragrostis spectabilis		UPL	Nt P-Grass	PURPLE LOVE GRASS
ERICAN	O Erigeron canadensis		FAC-	Nt A-Forb	HORSEWEED
EUPALT	0 Eupatorium altissimum		[FACU]	Nt P-Forb	TALL BONESET
EUPSEM	0 Eupatorium serotinum		FAC+	Nt P-Forb	LATE BONESET
EUPCOR	2 Euphorbia corollata		UPL	Nt P-Forb	FLOWERING SPURGE
FRAVIR	_		FAC-		
	1 Fragaria virginiana 10 Galium pilosum		UPL	Nt P-Forb Nt P-Forb	WILD STRAWBERRY
GALPIL	∸				HAIRY BEDSTRAW
HELDIV .	5 Helianthus divaricatus		UPL	Nt P-Forb	WOODLAND SUNFLOWER
HELGRO	2 Helianthus grosseserratus	_	FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER
LACSER	O LACTUCA SERRIOLA	_	FAC	Ad B-Forb	PRICKLY LETTUCE
LEPCAM	~O LEPIDIUM CAMPESTRE	5	UPL	Ad B-Forb	FIELD CRESS
LESCAP	4 Lespedeza capitata	3	FACU	Nt P-Forb	ROUND-HEADED BUSH CLOVER
LYTSAL	0 LYTHRUM SALICARIA	- 5	OBL	Ad P-Forb	PURPLE LOOSESTRIFE
MELALB	O MELILOTUS ALBA	3	FACU	Ad B-Forb	WHITE SWEET CLOVER
MELLOF	0 MELILOTUS OFFICINALIS	3	FACU	Ad B-Forb	YELLOW SWEET CLOVER
MONPUN	5 Monarda punctata		UPL	Nt P-Forb	HORSE MINT
OENBIE	0 Oenothera biennis		FACU	Nt B-Forb	COMMON EVENING PRIMROSE
PANCAP	1 Panicum capillare		FAC	Nt A-Grass	OLD WITCH GRASS
PANLAT	5 Panicum latifolium		FACU	Nt P-Grass	BROAD-LEAVED PANIC GRASS
PANVIR	5 Panicum virgatum		FAC+	Nt P-Grass	SWITCH GRASS
PARQUI	2 Parthenocissus quinquefoli			Nt W-Vine	VIRGINIA CREEPER
PHAARU	0 PHALARIS ARUNDINACEA		FACW+		
				Ad P-Grass	REED CANARY GRASS
PHRAUS	1 Phragmites australis		FACW+	Nt P-Grass	COMMON REED
PLALAN	0 PLANTAGO LANCEOLATA		FAC	Ad P-Forb	ENGLISH PLANTAIN
POAPRA	0 POA PRATENSIS		FAC-	Ad P-Grass	
POLCAL	3 Polygonatum canaliculatum	3	FACU	Nt P-Forb	SMOOTH SOLOMON'S SEAL
POPDEL	2 Populus deltoides	-1	L FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4 Populus tremuloides	C	FAC	Nt Tree	QUAKING ASPEN
PRUSER	1 Prunus serotina	3	FACU	Nt Tree	WILD BLACK CHERRY
PTEAQL	5 Pteridium a. latiusculum	3	FACU	Cryptogam	BRACKEN FERN
QUEVEL	6 Quercus velutina	5	UPL	Nt Tree	BLACK OAK
RHUGLA	1 Rhus glabra		UPL	Nt Shrub	SMOOTH SUMAC
RHUTYP	1 Rhus typhina		5 UPL	Nt Tree	STAGHORN SUMAC
RIBCYN	5 Ribes cynosbati		UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY
RUBALL	3 Rubus allegheniensis		FACU+	Nt Shrub	COMMON BLACKBERRY
RUBFLA	3 Rubus flaqellaris		FACU-	Nt Shrub	COMMON BLACKBERRY
RUBOCC	2 Rubus occidentalis		5 UPL	Nt Shrub	BLACK RASPBERRY
RUMCRI	0 RUMEX CRISPUS		L FAC+	Ad P-Forb	CURLY DOCK
SALDIS	2 Salix discolor		3 FACW	Nt Shrub	PUSSY WILLOW
SALINT	1 Salix interior		OBL	Nt Shrub	SANDBAR WILLOW
SALNIG	4 Salix nigra		5 OBL	Nt Tree	BLACK WILLOW
SAPOFF	O SAPONARIA OFFICINALIS		3 FACU	Ad P-Forb	BOUNCING BET
SILNOC	O SILENE NOCTIFLORA	-	5 UPL	Ad A-Forb	NIGHT-FLOWERING CATCHFLY
			3 FACU	Nt P-Forb	COMMON BLUE-EYED GRASS
SISALB	7 Sisyrinchium albidum	-			
	7 Sisyrinchium albidum	FAC	CU N	t P-Forb FE?	ATHERY FALSE SOLOMON'S SEAL
SISALB	7 Sisyrinchium albidum	FAC	CU N 5 UPL	T P-FORD FEA	
SISALB SMIRAC	7 Sisyrinchium albidum 3 Smilacina racemosa 3 5 Smilax ecirrhata	FAC		Nt P-Forb	UPRIGHT CARRION FLOWER
SISALB SMIRAC SMIECI SOLALT	7 Sisyrinchium albidum 3 Smilacina racemosa 3 5 Smilax ecirrhata 1 Solidago altissima	FAC	5 UPL 3 FACU	Nt P-Forb Nt P-Forb	UPRIGHT CARRION FLOWER TALL GOLDENROD
SISALB SMIRAC SMIECI SOLALT SOLGIG	7 Sisyrinchium albidum 3 Smilacina racemosa 3 5 Smilax ecirrhata 1 Solidago altissima 4 Solidago gigantea	FAC	5 UPL 3 FACU 3 FACW	Nt P-Forb Nt P-Forb Nt P-Forb	UPRIGHT CARRION FLOWER TALL GOLDENROD LATE GOLDENROD
SISALB SMIRAC SMIECI SOLALT SOLGIG SOLNEM	7 Sisyrinchium albidum 3 Smilacina racemosa 3 5 Smilax ecirrhata 1 Solidago altissima 4 Solidago gigantea 4 Solidago nemoralis	FAC	5 UPL 3 FACU 3 FACW 5 UPL	Nt P-Forb Nt P-Forb Nt P-Forb Nt P-Forb	UPRIGHT CARRION FLOWER TALL GOLDENROD LATE GOLDENROD OLD-FIELD GOLDENROD
SISALB SMIRAC SMIECI SOLALT SOLGIG SOLNEM SOLSPE	7 Sisyrinchium albidum 3 Smilacina racemosa 3 5 Smilax ecirrhata 1 Solidago altissima 4 Solidago gigantea 4 Solidago nemoralis 7 Solidago speciosa	FAC	UPL FACU FACW UPL UPL	Nt P-Forb Nt P-Forb Nt P-Forb Nt P-Forb Nt P-Forb	UPRIGHT CARRION FLOWER TALL GOLDENROD LATE GOLDENROD OLD-FIELD GOLDENROD SHOWY GOLDENROD
SISALB SMIRAC SMIECI SOLALT SOLGIG SOLNEM	7 Sisyrinchium albidum 3 Smilacina racemosa 3 5 Smilax ecirrhata 1 Solidago altissima 4 Solidago gigantea 4 Solidago nemoralis	FAC	5 UPL 3 FACU 3 FACW 5 UPL	Nt P-Forb Nt P-Forb Nt P-Forb Nt P-Forb	UPRIGHT CARRION FLOWER TALL GOLDENROD LATE GOLDENROD OLD-FIELD GOLDENROD

TRAOHI	2	Tradescantia ohiensis	2	FACU+	Νt	P-Forb	COMMON SPIDERWORT
TRADUB	0	TRAGOPOGON DUBIUS	5	UPL	Ad	B-Forb	SAND GOAT'S BEARD
ULMPUM	0	ULMUS PUMILA	5	UPL	Ad	Tree	SIBERIAN ELM
VERTHA	0	VERBASCUM THAPSUS	5	UPL	Ad	B-Forb	COMMON MULLEIN
VERHAS	4	Verbena hastata	-4	FACW+	Νt	P-Forb	BLUE VERVAIN
VERURU	5	Verbena urticifolia	5	UPL	Νt	P-Forb	HAIRY WHITE VERVAIN

No primary or secondary indicators of wetland hydrology were observed at the three data points within Area 3a, failing the hydrology criterion. Compacted soil conditions, and not wetland hydrology, is the cause of the presence of some hydrophytic plant species observed within Area 3a.

The soil at Data Points 18, 19, and 21 was classified as Made Land, Orthents. The soil profile from Data Point 19 is used here to serve as a representative Made Land profile for Area 3a:

A fill horizon of dark grayish brown (10YR 4/2) sand was found from 0 to 5 inches in depth. Below this, another fill horizon of brownish yellow (10YR 6/6) sand was observed from 5 to 20 inches in depth. An Ab horizon of black (10YR 2/1) sandy loam was found from 20 to 27 inches in depth. Finally, a Cb horizon of grayish brown (2.5Y 5/2) sand was found from 27 to 34 inches in depth.

None of the Made Land soil profiles within Area 3a exhibit hydric soil field indicators, and all failed to meet the soils criterion.

All of the data points within Area 3a fail at least one of the three wetland criteria, and Area 3a does not qualify as wetland. A small portion of Area 3a, located in the southwestern corner of Pilot Section 3, contains Black Oak savanna. This small upland area combined with Area 3b, constitutes the only remnant dune and swale complex on Pilot Section 3.

Area 3b – Upland

Data Point 22

Area 3b is an approximately 1.48-acre remnant dune/Black Oak savanna located between an emergent wetland (Area 3c) and the southern property boundary of Pilot Section 3 (Exhibit V; Photo 30). The dominant plant species are Pointed Tick Trefoil, Black Oak, Tall Goldenrod, Common Oak Sedge, Woodland Sunflower (*Helianthus divaricatus*) and Black Raspberry (*Rubus occidentalis*). None of these dominant plant species is hydrophytic, so the vegetation criterion is not satisfied.

The floristic diversity of the remnant dune/Black Oak savanna plant community is of moderate to high quality (NMC = 3.30, FQI = 26.60). The floristic quality calculations and plant species inventory for Area 3b are provided below.

FLORISTIC QUALITY DATA	Native	63	78.8%	Adventive	17	21.3%
63 NATIVE SPECIES	Tree	7	8.8%	Tree	1	1.3%
80 Total Species	Shrub	5	6.3%	Shrub	2	2.5%
3.3 NATIVE MEAN C	W-Vine	2	2.5%	W-Vine	0	0.0%
2.6 W/Adventives	H-Vine	1	1.3%	H-Vine	0	0.0%
26.6 NATIVE FQI	P-Forb	32	40.0%	P-Forb	8	10.0%
23.6 W/Adventives	B-Forb	3	3.8%	B-Forb	3	3.8%
1.9 NATIVE MEAN W	A-Forb	4	5.0%	A-Forb	1	1.3%
1.8 W/Adventives	P-Grass	4	5.0%	P-Grass	2	2.5%

AVG:	Fac.	Upland (+)	A-Grass		2	2.5	f .	A-Grass	0	0.0%
			P-Sedge		2	2.5	કે '	P-Sedge	0	0.0%
			A-Sedge		0	0.0	왐 .	A-Sedge	0	0.0%
			Cryptogam		1	1.3	ક			
2 00 011111	~	COTTAINTET O MANGE	•		TATION O	D	a to anom		7 . 7 7 7 MT	
ACRONYM		SCIENTIFIC NAME			WETNESS			Y COMMON		
ACESAI		Acer saccharinum			FACW	_	Tree		MAPLE	
ACHMIL		ACHILLEA MILLEFOLIU			FACU		P-Forb	YARRO		
AGRPAR		Agrimonia parviflor			FAC+		P-Forb		AGRIMONY	
ALLPET		ALLIARIA PETIOLATA			FAC		B-Forb		MUSTARD	
AMBARE		Ambrosia a. elatior Ambrosia trifida			FACU		A-Forb		N RAGWEED	
AMBTRI AMPBRB	_				FAC+ FAC		A-Forb P-Forb		RAGWEED O HOG PEANUT	1
AMPERE		Amphicarpaea bracte Andropogon gerardii			FAC-		r-Foid P-Grass	_	LUESTEM GRAS	
APOAND		Apocynum androsaemi			UPL		P-Forb		DING DOGBANE	
AQUCAN		Aquilegia canadensi			FAC-		P-Forb		COLUMBINE	
ARTCAU		Artemisia caudata			UPL		B-Forb		WORMWOOD	
ASCSYR		Asclepias syriaca			UPL		P-Forb		MILKWEED	
ASTERI		Aster ericoides			FACU-		P-Forb		ASTER	
ASTPIL		Aster pilosus			FACU+		P-Forb		ASTER	
CXPENS		Carex pensylvanica		5	UPL	Νt	P-Sedge		N OAK SEDGE	
CENLON		Cenchrus longispinu		5	UPL		A-Grass		UR	
CINARU	5	Cinna arundinacea	-	3	FACW	Νt	P-Grass	COMMO	N WOOD REED	
COMCOM	0	COMMELINA COMMUNIS		0	FAC	Ad	A-Forb	COMMO:	N DAY FLOWE	3
CRYCAN	2	Cryptotaenia canade	nsis	0	FAC	Νt	P-Forb	HONEW	ORT	
CYPFIL	5	Cyperus filiculmis		4	FACU-	Νt	P-Sedge	SLEND	ER SAND SEDO	3E
DAUCAR	0	DAUCUS CAROTA		5	UPL	Ad	B-Forb	QÜEEN	ANNE'S LACE	Ξ.
DESGLU	5	Desmodium glutinosu	m	5	UPL	Νt	P-Forb	POINT	ED TICK TREE	OIL.
DIONIT	7	Dioscorea villosa		1	FAC-	Νt	H-Vine	WILD	YAM	
ERIANS	0	Erigeron annuus		1	FAC-	Νt	B-Forb	ANNUA	L FLEABANE	
ERICAN	0	Erigeron canadensis		1	FAC-		A-Forb	HORSE	WEED	
EUPALT	0	Eupatorium altissim			[FACU]	Νt	P-Forb	\mathtt{TALL}	BONESET	
EUPRUG		Eupatorium rugosum			UPL		P-Forb		SNAKEROOT	
EUPCOR		Euphorbia corollata			UPL		P-Forb		RING SPURGE	
FRAVIR		Fragaria virginiana	L		FAC-		P-Forb		STRAWBERRY	
GALPIL		Galium pilosum			UPL		P-Forb		BEDSTRAW	
HELDIV		Helianthus divarica			UPL		P-Forb		AND SUNFLOW	ER.
HESMAT		HESPERIS MATRONALIS			UPL		P-Forb		S ROCKET	
IMPCAP		Impatiens capensis			FACW		A-Forb		E JEWELWEED	
JUNTEN		Juncus tenuis			[FACU+]		P-Forb	PATH		
LEOCAR		LEONURUS CARDIACA			UPL		P-Forb		RWORT	
LILMIC LONTAT		Lilium michiganense LONICERA TATARICA	-		FAC+ [UPL]		P-Forb Shrub		S CAP LILY RIAN HONEYS	MAKE E
LYTSAL		LYTHRUM SALICARIA	_		OBL		P-Forb		E LOOSESTRI	
MONFIS		Monarda fistulosa			FACU		P-Forb		BERGAMOT	e E
MORALB		MORUS ALBA			FAC		Tree		MULBERRY	
OENCLE		Oenothera clelandi:	i		[UPL]		B-Forb		EVENING PRI	MROSE
OXASTR		Oxalis stricta	=		UPL		P-Forb		N WOOD SORR	
PANCAP		Panicum capillare			FAC		A-Grass		ITCH GRASS	
PANVIR		Panicum virgatum	-		FAC+		P-Grass		H GRASS	
PARQUI		Parthenocissus quir					W-Vine		NIA CREEPER	
PHAARU) PHALARIS ARUNDINAC	-		FACW+		P-Gras		CANARY GRAS	
PHRAUS	1	. Phragmites austral:	is -	-4	FACW+	Νt	P-Gras	s COMMO	N REED	
PLAMAJ	(PLANTAGO MAJOR	-	- 1	FAC+	Ad	P-Forb	COMMO	N PLANTAIN	
POAPRA	(POA PRATENSIS		1	FAC-	Ad	P-Gras	s KENTU	CKY BLUE GR	ASS
${ t POLCAL}$	3	Polygonatum canali	culatum	3	FACU	Νt	P-Forb	SMOOT	H SOLOMON'S	SEAL
POPDEL	2	Populus deltoides	-	- 1	FAC+	Νt	Tree	EASTE	RN COTTONWO	OD
PREALB		Prenanthes alba			FACU	Νt	P-Forb	LION	S FOOT	
PRUVUV		PRUNELLA VULGARIS			[UPL]		P-Forb	LAWN	PRUNELLA	
PRUAME		Prunus americana			UPL		Tree	WILD		*
PRUSER		Prunus serotina			FACU		Tree		BLACK CHERR	Y
PTEAQL		Pteridium a. latiu	sculum		FACU		yptogam		CEN FERN	
QUEVEL		Quercus velutina	16.71		UPL		Tree		COAK	
RHUCOL		Rhus copallina lat	liolia		UPL		Shrub		ING SUMAC	
ROSCAR		Rosa carolina			FACU-		Shrub		JRE ROSE	
ROSMUL) ROSA MULTIFLORA	i a		FACU		Shrub		FLORA ROSE	177
RUBALL		Rubus allegheniens	тр		FACU+		Shrub		ON BLACKBERF	. Υ
RUBOCC RUMCRI		Rubus occidentalis RUMEX CRISPUS			UPL FAC+		Shrub P-Forb		C RASPBERRY	
SALINT		Salix interior			OBL		Shrub		MOCK BAR WILLOW	
SALINI		Salix incertor			OBL		Tree		MILLOW	
SAUNIG		Sanicula gregaria			FAC+		P-Forb		TERED BLACK	SNAKEDOOT
SASALB		Sassafras albidum			FACU		Tree		AFRAS	TOOMENAME
								~		

SILSTE	6 Silene stellata	5 UPL Nt P-Forb STARRY CAMPION
SMIRAC	3 Smilacina racemosa	3 FACU Nt P-Forb FEATHERY FALSE SOLOMON'S SEAL
SOLALT	1 Solidago altissima	3 FACU Nt P-Forb TALL GOLDENROD
SOLGIG	4 Solidago gigantea	-3 FACW Nt P-Forb LATE GOLDENROD
SOLGRN	3 Solidago g. nuttallii	0 [FAC] Nt P-Forb HAIRY GRASS-LEAVED GOLDENROD
SOLULM	5 Solidago ulmifolia	5 UPL Nt P-Forb ELM-LEAVED GOLDENROD
TAROFF	O TARAXACUM OFFICINALE	3 FACU Ad P-Forb COMMON DANDELION
TRAOHI	2 Tradescantia ohiensis	2 FACU+ Nt P-Forb COMMON SPIDERWORT
VERTHA	O VERBASCUM THAPSUS	5 UPL Ad B-Forb COMMON MULLEIN
VERURU	5 Verbena urticifolia	5 UPL Nt P-Forb HAIRY WHITE VERVAIN
VIOSOR	3 Viola sororia	1 FAC- Nt P-Forb COMMON BLUE VIOLET
VITRIP	2 Vitis riparia	-2 FACW- Nt W-Vine RIVERBANK GRAPE
ZIZAUR	7 Zizia aurea	-1 FAC+ Nt P-Forb GOLDEN ALEXANDERS

Saturated soil was not observed to a depth of 25 inches at Data Point 22. This depth is too great to satisfy the hydrology criterion.

The soil at Data Point 22 was classified as a Morocco sandy loam taxadjunct. The Ap horizon from 0 to 5 inches consisted of a black (2.5Y 2/1) sandy loam with many fine roots. The A horizon from 5 to 8 inches consisted of a black (2.5Y 2/1) sandy loam with common fine roots. The AB horizon from 8 to 11 inches consisted of a very dark gray (10YR 3/1) and dark brown (10YR 3/3) loamy sand with common fine roots. The Bw1 horizon consisted of brown (10YR 4/3) and dark grayish brown (10YR 4/2) loamy sand with few fine roots. The Bw2 horizon from 17 to 25 inches consisted of brown (10YR 4/3) and dark grayish brown (10YR 4/2) loamy sand with few faint dark yellowish brown (10YR 3/4) redox concentrations as pore linings. Hydric soil field indicators were not observed, so the soils criterion is not satisfied.

Area 3b fails all three wetland criteria and does not qualify as wetland.

Area 3c - Emergent Wetland

Data Points 20 and 23

Area 3c is an approximately 4.91-acre emergent wetland located within the southern portion of Pilot Section 3 (Photos 14 and 31). The amount of disturbance in the surrounding uplands has resulted in degradation of the plant community, with the result being that most of the wetland is dominated by Purple Loosestrife, Typha Latifolia (Broad-leaved Cattail), and Reed Canary Grass The dominant species are Purple Loosestrife, Riverbank Grape, (Phalaris arundinacea). Narrow-leaved Cattail, and Black Willow (Salix nigra), Elderberry (Sambucus canadensis), Spotted Joe Pye Weed (Eupatorium maculatum), Blue Joint Grass (Calamagrostis canadensis), White Snakeroot (Eupatorium rugosum), Royal Fern (Osmunda regalis spectabilis), and Upland Hog Peanut (Amphicarpaea bracteata). Greater than 50% of the dominant species are hydrophytic; thus, the vegetation criterion is satisfied. Despite the visual dominance by Purple Loosestrife, Broad-leaved Cattail and Reed Canary Grass within the wetland, the emergent wetland plant community is predominantly composed of higher quality species resulting in a moderately high floristic quality (NMC = 4.10, FQI = 31.90). Most of these higher quality species are hidden among and underneath the aggressive dominants or located along the less disturbed southern boundary of Area 3c. The floristic quality calculations and plant species inventory are provided below.

FLORISTIC QUALITY DATA	Native	60	89.6%	Adventive	7	10.4%
60 NATIVE SPECIES	Tree	4	6.0%	Tree	2	3.0%
67 Total Species	Shrub	6	9.0%	Shrub	0	0.0%
4.1 NATIVE MEAN C	W-Vine	2	3.0%	W-Vine	1	1.5%

3.7 W/Adventives	H-Vine	1	1.5%	H-Vine	0	0.0%
31.9 NATIVE FQI	P-Forb	28	41.8%	P-Forb	2	3.0%
30.2 W/Adventives	B-Forb	1	1.5%	B-Forb	1	1.5%
-2.4 NATIVE MEAN W	A-Forb	7	10.4%	A-Forb	0	0.0%
-2.2 W/Adventives	P-Grass	3	4.5%	P-Grass	1	1.5%
AVG: Fac. Wetland (-)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	4	6.0%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	4	6.0%	-		

ACRONYM	C SCIENTIFIC NAME	W WETNESS	PHYSIOGNOMY	COMMON NAME
ACESAI	0 Acer saccharinum	-3 FACW	Nt Tree	SILVER MAPLE
ALISUB	4 Alisma subcordatum	-5 OBL	Nt P-Forb	COMMON WATER PLANTAIN
ALLPET	O ALLIARIA PETIOLATA	0 FAC	Ad B-Forb	GARLIC MUSTARD
AMBTRI	0 Ambrosia trifida	-1 FAC+	Nt A-Forb	GIANT RAGWEED
AMPBRB	4 Amphicarpaea bracteata	0 FAC	Nt P-Forb	UPLAND HOG PEANUT
ASTNOV	4 Aster novae-angliae	-3 FACW	Nt P-Forb	NEW ENGLAND ASTER
ASTSIS	3 Aster simplex	-5 OBL	Nt P-Forb	PANICLED ASTER
ASTUMB	9 Aster umbellatus	-3 FACW	Nt P-Forb	FLAT-TOP ASTER
BOECYC	2 Boehmeria cylindrica	-5 OBL	Nt P-Forb	FALSE NETTLE
CALCAN	3 Calamagrostis canadensis	-5 OBL	Nt P-Grass	BLUE JOINT GRASS
CAMAPA	8 Campanula aparinoides	-5 OBL	Nt P-Forb	MARSH BELLFLOWER
CXLACU	6 Carex lacustris	-5 OBL	Nt P-Sedge	COMMON LAKE SEDGE
CXSTRI	5 Carex stricta	-5 OBL	Nt P-Sedge	COMMON TUSSOCK SEDGE
CEPOCC	5 Cephalanthus occidentalis	-5 OBL	Nt Shrub	BUTTONBUSH
CICMAC	6 Cicuta maculata	-5 OBL	Nt P-Forb	WATER HEMLOCK
CYPFIL	5 Cyperus filiculmis	4 FACU-	Nt P-Sedge	SLENDER SAND SEDGE
DIOVIL	7 Dioscorea villosa	1 FAC-	Nt H-Vine	WILD YAM
DRYTHP	6 Dryopteris t. pubescens	~5 [OBL]	Cryptogam	MARSH SHIELD FERN
EUPPER	4 Eupatorium perfoliatum	-4 FACW+	Nt P-Forb	COMMON BONESET
EUPRUG	4 Eupatorium rugosum	5 UPL	Nt P-Forb	WHITE SNAKEROOT
GALAPA	1 Galium aparine	3 FACU	Nt A-Forb	ANNUAL BEDSTRAW
HELDIV	5 Helianthus divaricatus	5 UPL	Nt P-Forb	WOODLAND SUNFLOWER
HELGRO	2 Helianthus grosseserratus	-2 FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER
IMPCAP	3 Impatiens capensis	-3 FACW	Nt A-Forb	ORANGE JEWELWEED
IRIVIS	5 Iris v. shrevei	~5 OBL	Nt P-Forb	BLUE FLAG
LEOCAR	0 LEONURUS CARDIACA	5 UPL	Ad P-Forb	MOTHERWORT
LYCAME	5 Lycopus americanus	-5 OBL	Nt P-Forb	COMMON WATER HOREHOUND
LYTSAL	0 LYTHRUM SALICARIA	~5 OBL	Ad P-Forb	PURPLE LOOSESTRIFE
MENARV	5 Mentha a. villosa	-5 [OBL]	Nt P-Forb	WILD MINT
MORALB OENCLE	0 MORUS ALBA	0 FAC	Ad Tree	WHITE MULBERRY
ONOSEN	7 Oenothera clelandii 8 Onoclea sensibilis	5 [UPL] -3 FACW	Nt B-Forb	SAND EVENING PRIMROSE SENSITIVE FERN
OSMCIN	7 Osmunda cinnamomea	-3 FACW	Cryptogam	
OSMRES	8 Osmunda r. spectabilis	-5 OBL	Cryptogam Cryptogam	CINNAMON FERN ROYAL FERN
PARQUI	2 Parthenocissus quinquefolia		Nt W-Vine	VIRGINIA CREEPER
PHAARU	0 PHALARIS ARUNDINACEA	-4 FACW+	Ad P-Grass	REED CANARY GRASS
PHRAUS	1 Phragmites australis	-4 FACW+	Nt P-Grass	COMMON REED
POLAMS	4 Polygonum a. stipulaceum	-5 OBL	Nt P-Forb	WATER KNOTWEED
POLLAP	0 Polygonum lapathifolium	-4 FACW+	Nt A-Forb	HEARTSEASE
POLPUN	6 Polygonum punctatum	-5 OBL	Nt A-Forb	SMARTWEED
POLSAG	8 Polygonum sagittatum	-5 OBL	Nt A-Forb	ARROW-LEAVED TEAR-THUMB
POPALB	0 POPULUS ALBA	5 UPL	Ad Tree	WHITE POPLAR
POPDEL	2 Populus deltoides	-1 FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4 Populus tremuloides	0 FAC	Nt Tree	QUAKING ASPEN
RIBCYN	5 Ribes cynosbati	5 UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY
RORPAF	4 Rorippa p. fernaldiana	-5 OBL	Nt A-Forb	MARSH CRESS
RUBALL	3 Rubus allegheniensis	2 FACU+	Nt Shrub	COMMON BLACKBERRY
RUBOCC	2 Rubus occidentalis	5 UPL	Nt Shrub	BLACK RASPBERRY
SALINT	1 Salix interior	-5 OBL	Nt Shrub	SANDBAR WILLOW
SALNIG	4 Salix nigra	-5 OBL	Nt Tree	BLACK WILLOW
SAMCAN	1 Sambucus canadensis	-2 FACW-	Nt Shrub	ELDERBERRY
SCIFLU	4 Scirpus fluviatilis	-5 OBL	Nt P-Sedge	
SCULAT	5 Scutellaria lateriflora	-5 OBL	Nt P-Forb	MAD-DOG SKULLCAP
SIUSUA	7 Sium suave	-5 OBL	Nt P-Forb	TALL WATER PARSNIP
SOLDUL	0 SOLANUM DULCAMARA	0 FAC	Ad W-Vine	BITTERSWEET NIGHTSHADE
SOLALT	1 Solidago altissima	3 FACU	Nt P-Forb	TALL GOLDENROD
SOLGIG	4 Solidago gigantea	-3 FACW	Nt P-Forb	LATE GOLDENROD
SOLGRN		[FAC] Nt	P-Forb HAIR	Y GRASS-LEAVED GOLDENROD
SOLPAT	9 Solidago patula	-5 OBL	Nt P-Forb	SWAMP GOLDENROD
SPAPEC	4 Spartina pectinata	-4 FACW+	Nt P-Grass	PRAIRIE CORD GRASS
B P E	Jagical Aggaggment			\(\(\O = = = \cdot \(\tau = t = \cdot \)

STATEH	5 Stachys t. hispida	-4 FACW+	Nt P-Forb	MARSH HEDGE NETTLE
TYPANG	1 Typha angustifolia	-5 OBL	Nt P-Forb	NARROW-LEAVED CATTAIL
TYPLAT	1 Typha latifolia	-5 OBL	Nt P-Forb	BROAD-LEAVED CATTAIL
URTPRO	2 Urtica procera	-1 FAC+	Nt P-Forb	TALL NETTLE
VERHAS	4 Verbena hastata	-4 FACW+	Nt P-Forb	BLUE VERVAIN
VITRIP	2 Vitis riparia	-2 FACW-	Nt W-Vine	RIVERBANK GRAPE
ZIZAUR	7 Zizia aurea	-1 FAC+	Nt P-Forb	GOLDEN ALEXANDERS

Primary and secondary indicators of wetland hydrology were observed at Data Points 20 and 23, satisfying the hydrology criterion at both locations.

The soil at Data Point 20 was classified as Adrian muck, taxadjunct. An A horizon of black (N2.5/) mucky loam was found from 0 to 23 inches in depth. Below this, a Bg horizon of grayish brown (2.5Y 5/2) sand was observed. This horizon contained common prominent dark yellowish brown (10YR 4/6) redoximorphic features. The soil profile at Data Point 20 exhibits hydric soil field indicator F1, Loamy Mucky Mineral, and satisfies the soils criterion.

The soil at Data Point 23 was classified as a mucky Gilford sandy loam. The A1 horizon from 0 to 5 inches consisted of a black (N 2.5/) mucky sandy loam. The A2 horizon from 5 to 10 inches consisted of a black (N2.5/) light sandy loam with few prominent dark brown (10YR 3/3) and dark yellowish brown (10YR 4/6) redoximorphic features. The ABg horizon from 10 to 24 inches consisted of 75% black (2.5Y 2/1) and 25% grayish brown (2.5Y 5/2) sandy loam. The Bg horizon from 24 to 30 inches consisted of a light grayish brown (2.5Y 6/2) loamy sand with few distinct very dark gray (10YR 3/1) organic coatings. The soil profile exhibits F1, loamy mucky material and F6, Redox Dark Surface, and satisfies the soils criterion.

All three wetland criteria are satisfied; thus, Area 3c qualifies as wetland. Due to its closed depressional nature Area 3c is likely to be an isolated wetland; however, it is also part of the only remnant dune and swale complex found on Pilot Section 3 and discharges to the wetland are likely to be regulated by the DEM.

PILOT SECTION 4

Area 4a - Upland

Data Points 8, 10, 12, 13, 15, 16, and 17

Area 4a consists of the upland portions of the 36-acre Pilot Section 4. This area includes two remnant dunes, a leveled dune sand prairie, and a weedy old field. Pilot Section 4 can for simplicity's sake be divided into two halves, the northern half and the southern half. The southern half of Pilot Section 4 contains two high quality relic dunes (Photos 20 and 22) separated by a wetland swale (see Area 4b below) and a portion of leveled dune that has developed into a high quality dry sand prairie (Photo 23). The northern half of Pilot Section 4 has been severely altered from its original dune and swale topography. Nearly all of the former dune features have been leveled, resulting in a plant community comprised of non-native weeds and native prairie grasses and forbs (Photos 25, 26 and 29). The southern half of Pilot Section 4 contains the remaining dune portion of Area 4a and includes high plant species diversity, yielding a high floristic quality. The northern half of Pilot Section 4, the more severely degraded portion of Area 4a, has moderate diversity and floristic quality because of historic earthwork and continuing damage by all-terrain vehicles (ATV's). A large portion of Area 4a contains

apparently unauthorized ATV trails, which have caused severe degradation to a small portion of remnant dune, but more so to the old-field portion of Area 4a.

Seven data points were collected within Area 4a. The dominant plant species in this area are Black Oak, Black Cherry, Riverbank Grape, Woodland Sunflower, Quack Grass, Marram Grass, Big Bluestem Grass, Kentucky Blue Grass, Tall Goldenrod, Creeping Charlie, Eastern Cottonwood, Common Reed, Gray Dogwood (Cornus racemosa), Bracken Fern (Pteridium aquilinum latiusculum), Common Oak Sedge (Carex pensylvanica), Pasture Rose (Rosa carolina), Little Bluestem Grass (Andropogon scoparius), Switch Grass (Panicum virgatum), Wild Strawberry (Fragaria virginiana), Giant Ragweed (Ambrosia trifida), Sandbar Willow (Salix interior), Round-headed Bushclover (Lespedeza capitata), Tall Scouring Rush (Equisetum hyemale), Canada Goldenrod (Solidago canadensis), and Prairie Cord Grass (Spartina pectinata). All seven data points had 50% or less hydrophytic species as dominants, thereby failing the vegetation criterion.

As stated previously, the dune and swale plant community of Area 4a exhibited high floristic diversity with a relatively high proportion of high-ranked natives, and therefore is considered high quality (NMC = 4.60, FQI = 54.70). The floristic quality calculations and plant species inventory are provided below.

FLORISTIC QUALITY DATA	Native	142	81.6%	Adventive	32	18.4%
142 NATIVE SPECIES	Tree	8	4.6%	Tree	3	1.7%
174 Total Species	Shrub	16	9.2%	Shrub	2	1.1%
4.6 NATIVE MEAN C	W-Vine	3	1.7%	W-Vine	0	0.0%
3.7 W/Adventives	H-Vine	1	0.6%	H-Vine	0	0.0%
54.7 NATIVE FQI	P-Forb	75	43.1%	P-Forb	7	4.0%
49.4 W/Adventives	B-Forb	6	3.4%	B-Forb	9	5.2%
1.6 NATIVE MEAN W	A-Forb	3	1.7%	A-Forb	5	2.9%
1.8 W/Adventives	P-Grass	16	9.2%	P-Grass	2	1.1%
AVG: Fac. Upland (+)	A-Grass	2	1.1%	A-Grass	4	2.3%
_	P-Sedge	7	4.0%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	5	2.9%	-		

ACRONYM	C SCIENTIFIC NAME	W WETNESS	PHYSIOGNOMY COMMON NAME
ACENEG	0 Acer negundo	-2 FACW-	Nt Tree BOX ELDER
ACHMIL	0 ACHILLEA MILLEFOLIUM	3 FACU	Ad P-Forb YARROW
AGRREP	0 AGROPYRON REPENS	3 FACU	Ad P-Grass QUACK GRASS
AMBARE	0 Ambrosia a. elatior	3 FACU	Nt A-Forb COMMON RAGWEED
AMBTRI	0 Ambrosia trifida	-1 FAC+	Nt A-Forb GIANT RAGWEED
AMMBRE	7 Ammophila breviligulata	5 UPL	Nt P-Grass MARRAM GRASS
AMPBRB	4 Amphicarpaea bracteata	0 FAC	Nt P-Forb UPLAND HOG PEANUT
ANDGER	5 Andropogon gerardii	1 FAC-	Nt P-Grass BIG BLUESTEM GRASS
ANDSCO	5 Andropogon scoparius	4 FACU-	Nt P-Grass LITTLE BLUESTEM GRASS
ANECYL	6 Anemone cylindrica	5 UPL	Nt P-Forb THIMBLEWEED
ANTNEG	4 Antennaria neglecta	5 UPL	Nt P-Forb CAT'S FOOT
APOCAN	4 Apocynum cannabinum	0 FAC	Nt P-Forb INDIAN HEMP
AQUCAN	6 Aquilegia canadensis	1 FAC-	Nt P-Forb WILD COLUMBINE
ARALYR	5 Arabis lyrata	4 FACU-	Nt B-Forb SAND CRESS
ARTCAU	5 Artemisia caudata	5 UPL	Nt B-Forb BEACH WORMWOOD
ASCSYR	0 Asclepias syriaca	5 UPL	Nt P-Forb COMMON MILKWEED
ASPOFF	O ASPARAGUS OFFICINALIS	3 FACU	Ad P-Forb ASPARAGUS
ASTDUM	5 Aster dumosus	-1 FAC+	Nt P-Forb RICE-BUTTON ASTER
ASTERI	5 Aster ericoides	4 FACU-	Nt P-Forb HEATH ASTER
ASTLAE	9 Aster laevis	5 UPL	Nt P-Forb SMOOTH BLUE ASTER
ASTNOV	4 Aster novae-angliae	-3 FACW	Nt P-Forb NEW ENGLAND ASTER
ASTPIL	0 Aster pilosus	2 FACU+	Nt P-Forb HAIRY ASTER
ASTUMB	9 Aster umbellatus	-3 FACW	Nt P-Forb FLAT-TOP ASTER
AURFLA	9 Aureolaria flava	5 UPL	Nt P-Forb SMOOTH FALSE FOXGLOVE
BARVUL	O BARBAREA VULGARIS	0 FAC	Ad B-Forb YELLOW ROCKET

RROYEC	220 TAD	A PROMICE TABOVICA		<i>~</i>	TARRIUGA GWAGA
CALCAN 3 Calamagnostis canadensis -5 OLL N. PSade LONG-SCALED TUSSOCK SEGRE CXMOUNT 5 Carex mainlenbergii 5 U.H. PSade LONG-SCALED TUSSOCK SEGRE CXMOUNT SECRET			= = = ::		
CHANAD S Carex Maydenii					
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CXFSING Carex pensylvanica					
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COMUNE 7 Commandra umbellata 3 FACU N.	CIRDIS	2 Cirsium discolo	or 5 UI	PL Nt B-Forb	PASTURE THISTLE
CONSTRP 1 Convolvulus sepium	CIRVUL	0 CIRSIUM VULGARE	4 F)	ACU- Ad B-Forb	BULL THISTLE
CORRAGE 1 Cornus racemosa -2 FACW Nt Shrub SRAY DOGMOOD	COMUMB			ACU Nt P-Forb	FALSE TOADFLAX
CORRAGE 1 Cornus racemosa -2 FACW Nt Shrub SRAY DOGMOOD		1 Convolvulus sep	ium OF1		HEDGE BINDWEED
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CUSSIGN	CORRAC	1 Cornus racemosa	-2 F <i>l</i>	ACW- Nt Shrub	GRAY DOGWOOD
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ELYVIAN	DAUCAR	0 DAUCUS CAROTA	_ 5 UI	PL Ad B-Forb	QUEEN ANNE'S LACE
ELYVIAN	ECHLOB	5 Echinocystis lo	bata -2 FA	ACW- Nt H-Vine	WILD CUCUMBER
EQUARY 0 Equisetum arvense 0 FAC	ELYCAN			AC- Nt P-Grass	CANADA WILD RYE
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		7 Osmunda cinnam	omea -3 F	ACW Cryptogam	
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	PANCAP	1 Panicum capill	are 0 F	AC Nt A-Grass	OLD WITCH GRASS

PARLAY									
PANNIT	PANLAT				3 FACU				BROAD-LEAVED PANIC GRASS
PARTIN	PANOLS				3 [FACU]	Nt P	-Grass	SCRIBNER'S PANIC GRASS
PARTIN	PANVIR	5	Panicum virgatum		-1 FAC+		Nt P	-Grass	SWITCH GRASS
PEDCAM 9 Pedicularis canadensis 2 PACU N. PFOTD MARSE PHICX	PARINT				5 UPL		Nt P	-Forb	WILD OUININE
PHILOID PANDA Glaborrima interior 3 PACN					_				
PHEDIP 7 PRIOR 51008 PRIABLE PRIOR									
PHRAMAJ									
PLANSA									
DOAPRA 0 POA PRATENSIS 1 FAC- AG P-Grass KENTUCKY ELGENSS			-						
POLOCAL 3 Polygonatum canaliculatum 5 FACU Nr. P-Forb SMOOTH SOLOMON'S SEAL	PLAMAJ	0	PLANTAGO MAJOR				Ad P	~Forb	COMMON PLANTAIN
POPDEL 2 Populus deltoides	POAPRA	0	POA PRATENSIS		1 FAC-		Ad P	-Grass	KENTUCKY BLUE GRASS
POPTEE	POLCAL	3	Polygonatum canaliculatum	ı	3 FACU		Nt P	-Forb	SMOOTH SOLOMON'S SEAL
POPTEE	POPDEL	2	Populus deltoides		-1 FAC+		Nt T	ree	EASTERN COTTONWOOD
POTSIS			-		0 FAC		Nt T	ree	
PREALD S Premanthes alba S PACU N P Porb									
PREAIT									
PRINTER 1 Printer Serotina 3 PACU No. Three NILD BLACK CHERRY									
PRUVIR 3 Prunus virginiana 3 FACU CTYPTOGAM EACKERY PERN OUBSEL 6 Querous bicolor -4 FACW N. Tree SNAMP WHITE CAK CUSVEL 6 Querous velutina 5 UPL N. Tree SNAMP WHITE CAK CHUNCUL 6 Rhus c. latifolia 5 UPL N. Tree SNAMP WHITE CAK CHUNCUL 6 Rhus c. latifolia 5 UPL N. Shrub SHINING SUNAC RIBCIN 5 Ribes cynosbati 5 UPL N. Shrub STAGHORN SUMAC STAGHO			_						
Design						_			
QUENCIA 6 Quencus bioclor -4 FACW+ Nt Tree SMAMP WHITE OAK RUUCOL 6 Quencus velutina 5 UPL Nt Tree BLACK OAK RUUCOL 6 Rues carolina 5 UPL Nt Shrub SHINUS SUNAC RIBCYN 5 Rosa carolina 4 FACU- Nt Shrub PASTURE ROSAR RUBALL 3 Rubus alleghenienis 4 FACU- Nt Shrub COMMON DEMOKRERY RUBOC 2 Rubus cocidentalis 5 UPL Nt Shrub COMMON DEMOKRERY RUBOC 2 Salix humilis 3 FACU Nt Shrub COMMON DEMOKRERY SALINT 1 Salix interior -5 OS DEL Nt Shrub PERSTER RASALE SANDER 1 Sanicala gregaria -1 FACW- Nt Shrub PERSTER WILLOW SASAPER 2 Sanicala gregaria -1 FACW- Nt P-Forb SASAPAS SASIAL 3 RACU Nt P-Forb	PRUVIR	3	Prunus virginiana		3 [FACU]	Nt S	hrub	CHOKE CHERRY
Note	PTEAQL	5	Pteridium a. latiusculum		3 FACU		Cryp	togam	BRACKEN FERN
Guerous velutina	QUEBIC	6	Quercus bicolor		-4 FACW+		Nt T	'ree	SWAMP WHITE OAK
EMUTYP 1	_	6	Ouercus velutina		5 UPL		Nt T	'ree	
RHUTYP 1 Rhus typhina									
RIBCYN S Robes Cynosbati S UPL Nt Shrub PRICKLY WILD GOOSEBERRY ROSCAR S Robes acrolina 4 FACU Nt Shrub PASTURE ROSE RUBRIA 3 Rubus allegheniensis 2 FACU Nt Shrub COMMON BLACKBERRY RUBPLA 3 Rubus allegheniensis 2 FACU Nt Shrub COMMON BLACKBERRY RUBOCC 2 Rubus occidentalis 5 UPL Nt Shrub COMMON BLACKBERRY RUBOCC 2 Rubus occidentalis 5 UPL Nt Shrub COMMON BLACKBERRY RUBOCC 2 Rubus occidentalis 5 UPL Nt Shrub COMMON BLACKBERRY RALDIS 2 Salix discolor -3 FACU Nt Shrub PRAIRIE WILLOW RALDIS 2 Salix interio -5 OBL Nt Shrub PRAIRIE WILLOW RALDIS 2 Salix interio -7 OBL Nt Shrub PRAIRIE WILLOW RALDIS 2 Salix alix for -7 OBL Nt Shrub PRAIRIE WILLOW RALDIS 2 Salix alix for -7 OBL Nt Shrub PRAIRIE WILLOW RALDIS 2 SABORARIA OFFICINALIS 3 FACU Nt Tree SASSARRAS RANDER 3 SASSAFRAS albidum 3 FACU Nt Tree SASSARRAS RANDER 5 SCROPHULARIA BLACK SIAVEROOT -1 FAC Nt P-Forb BOUNTOING BET RASEL 5 SCROPHULARIA BLACK SIAVEROOT -1 FAC Nt P-Forb BARIAY RAGNORT REFERENCE 5 SASSARRAS -1 FAC Nt P-Forb BARIAY RAGNORT REFERENCE 5 SASSARRAS -1 FAC Nt P-Forb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FOrb LATE FIGWORT REFERENCE 5 SASSARRAS -1 FAC Nt P-FORD LATE FIGWORT REFE									
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RUBELA 3 Rubus allegheniensis 2 FACU			-						
Number August A									
Subject 2 Rubus occidentalis 5 UPL Nt. Shrub	RUBALL								
SALINT 1	RUBFLA		-		4 FACU-		Nt S	hrub	COMMON DEWBERRY
SALIUM 6 Salix humilis 3 FACU Nt Shrub PRAIRIE WILLOW SALINT 1 Sambucus canadensis -5 OEL Nt Shrub SANDAR 1 Sambucus canadensis -2 FACW- Nt Shrub SADDAR CLUSTERE SIACK Nt Shrub SADDAR SADARARIA OFFICINALIS 3 FACU Nt P-ForD CLUSTERE BLACK SNAKEROOT SASABAB 3 Sassafras abidum 3 FACU Nt Tree SASSABRAS SAXEEN 10 Saxifraga pensylvanica -3 FACW Nt P-ForD SASSABRAS SCRMAR 4 Scrophularia lanceolata -1 FAC+ Nt P-ForD BARM PSAXIFRAGE SCRMAR 4 Scrophularia lanceolata -1 FAC+ Nt P-ForD BARM PSAXIFRAGE SETPAB 6 Senecio pauperculus -1 FAC+ Nt P-ForD BALSAM RAGWORT SETPAB 0 SETARIA GLAUCA 0 FAC Ad A-Grass GAMT FOXTALL SETPAB 0 SETARIA GLAUCA 0 FAC Ad A-Grass YELLOW FOXTALL SILSTE 6 Silene stellata 5 UPL Nt P-ForD NT P-ForD BALSAM RAGWORT SILINI 5 Silphium integrifoli	RUBOCC	2	Rubus occidentalis		5 UPL		Nt S	hrub	BLACK RASPBERRY
SALIUM 6 Salix humilis 3 FACU Nt Shrub PRAIRIE WILLOW SALIUM SALIX interior -5 OBL Nt Shrub SADDBAR WILLOW SANCAN 1 Sambucus canadensis -2 FACH- Nt Shrub SLADBAR WILLOW SANCAN 2 Sanicula gregaria -1 FACH Nt P-Forb CLUSTREEB BLACK SNAKEROOT SAPOFF 0 SAPORARIA OFFICINALIS 3 FACU Nt P-Forb CLUSTREEB BLACK SNAKEROOT SAXEEN 10 Saxifraga pensylvanica -3 FACW Nt P-Forb CAMPAMP SAXIFRAGE SCRMAR 4 Scrophularia lanceolata -1 FACH Nt P-Forb EARLY FIGWORT SETRIA 5 Scrophularia lanceolata -1 FACH Nt P-Forb BALSAM RAGWORT SETRIA 6 Senecio pauperculus -1 FACH Nt P-Forb BALSAM RAGWORT SETRIA 0 SETARIA GLAUCA 0 FAC Ad A-Grass YELLOW FOXTALL SILISTE 6 Silene stellata 5 UPL Nt P-Forb MTRAC SMISCI 5 Smilacina stellata 1 FACH Nt P-Forb MTRAC SMICAL 1 Solidago altissima <td< td=""><td>SALDIS</td><td>2</td><td>Salix discolor</td><td></td><td>-3 FACW</td><td></td><td>Nt S</td><td>hrub</td><td>PUSSY WILLOW</td></td<>	SALDIS	2	Salix discolor		-3 FACW		Nt S	hrub	PUSSY WILLOW
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SAMCAN					_		_		
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SCRLAN S Scrophularia lanceolata 1 FAC+ Nt P-Forb EARLY FIGWORT	SASALB	3	Sassafras albidum		3 FACU		Nt I	ree:	SASSAFRAS
SCRLAN S Scrophularia lanceolata 1 FAC+ Nt P-Forb EARLY FIGWORT	SAXPEN	1.0	Saxifraqa pensylvanica		-3 FACW		Nt P	-Forb	SWAMP SAXIFRAGE
SCHMAR	SCRLAN				-1 FAC+		Nt. P	-Forb	EARLY FIGWORT
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VIOLE STOLE STOLE TAC NC F-FOLD COMMON BLOW VIOLET									
	WINCHE								

VITAES	7 Vitis aestivalis	3 FACU Nt W-Vine	SUMMER GRAPE
VITRIP	2 Vitis riparia	-2 FACW- Nt W-Vine	RIVERBANK GRAPE
ZIZAUR	7 Zizia aurea	-1 FAC+ Nt P-Forb	GOLDEN ALEXANDERS

No primary or secondary indicators of wetland hydrology were observed at any of the data points within Area 4a, failing the hydrology criterion.

The soil profiles at Data Points 8, 15 and 16 were classified as Morocco loamy fine sand. The profile from Data Point 8 is used here as a representative Morocco profile from Area 4a:

An A horizon of very dark grayish brown (10YR 3/2) sandy loam was found from 0 to 9 inches in depth. Below this, a Bwl horizon of brown (10YR 4/3) loamy sand was observed from 9 to 11 inches in depth. Finally, a Bw2 horizon of yellowish brown (10YR 5/6) sand was found from 11 to 40 inches in depth. This horizon contained common faint dark yellowish brown (10 YR 4/6) redoximorphic features.

The soil profile at Data Point 10 was classified as Oakville fine sand. An A horizon of very dark grayish brown (10YR 3/2) loamy sand was found from 0 to 3 inches in depth. Below this, a Bw horizon of light yellowish brown (10YR 6/4) sand was observed from 3 to 26 inches in depth. Finally, a C horizon of very pale brown (10YR 7/4) sand was found from 26 to 29 inches in depth.

The soil profile at Data Point 12 was classified as Brems loamy sand. An A horizon of black (10YR 2/1) sandy loam was found from 0 to 9 inches in depth. Below this, a Bw1 horizon of dark yellowish brown (10YR 4/6) sand was observed from 9 to 11 inches in depth. Continuing downward, a Bw2 horizon of yellowish brown (10YR 5/4) sand was found from 11 to 17 inches in depth. Finally, a BC horizon of light brownish gray (10YR 6/2) sand was observed from 17 to 27 inches in depth.

The soil profiles at Data Points 13 and 17 were classified as Made Land, Orthents. The profile from Data Point 13 is used here as a representative Made Land, Orthents profile from Area 4a:

An A horizon of dark brown (10YR 3/3) sand was found from 0 to 10 inches in depth. Below this, a mixed fill horizon of brownish yellow (10YR 6/6) sand was observed from 10 to 27 inches in depth. This horizon contained a few faint dark yellowish brown (10YR 4/6) redoximorphic features, along with layers of mixed very dark grayish brown (10YR 3/2) and black (10YR 2/1) silty material.

None of the Data Points within Area 4a exhibits hydric soil field indicators, thereby failing the soils criterion.

None of the locations within Area 4a meets any of the wetland criteria, so Area 4a does not qualify as wetland.

Area 4b - Emergent Wetland

Data Points 9 and 11

Area 4b consists of a 12.40-acre wetland swale and large emergent wetland located on the southern half of Pilot Section 4 (Photos 18, 19 and 21) partially separated by a shallow dune. Since the swale and emergent wetland are connected by surface flow, via a low point in the southernmost dune, they are, in essence, one large wetland. The NWI map (Exhibit II) identifies this area as a seasonally flooded emergent wetland (PEMC). The dominant species are Purple Loosestrife, Narrow-leaved Cattail, Sawtooth Sunflower, and River Bulrush (*Scirpus fluviatilis*), Reed Canary Grass, Sawtooth Sunflower, and Blue Joint Grass. All of the dominant species are hydrophytic, thereby satisfying the vegetation criterion.

Despite dominance by non-native and low quality native species such as Purple Loosestrife, Narrow-leaved cattail, and Common Reed, several high quality native species were scattered throughout the understory forb layer. These species include Common Lake Sedge (Carex lacustris), Water Hemlock (Cicuta maculata), Swamp Thistle (Cirsium muticum), Northern Bugle Weed (Lycopus uniflorus), Sensitive Fern (Onoclea sensibilis), Arrow-leaved Tear-thumb (Polygonum sagittatum), and Marsh Skullcap (Scutellaria epilobiifolia). It is expected that many other high-quality natives are present within the understory forb layer, however, the wetland portion of the Pilot Section 4 dune and swale complex already exhibit high floristic diversity. Despite moderate to severe degradation (i.e., earthwork, hydrologic manipulation, or non-native colonization) to certain portions of Area 4b, this wetland exhibits high floristic quality (NMC = 4.80, FQI = 42.30). The floristic quality calculations and plant species inventory for Area 4b are provided below.

FLORISTIC QUALITY DATA	Native	78	94.0%	Adventive	5	6.0%
78 NATIVE SPECIES	Tree	4	4.8%	Tree	2	2.4%
83 Total Species	Shrub	4	4.8%	Shrub	1.	1.2%
4.8 NATIVE MEAN C	W-Vine	1.	1.2%	W-Vine	0	0.0%
4.5 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
42.3 NATIVE FQI	P-Forb	43	51.8%	P-Forb	1.	1.2%
41.1 W/Adventives	B-Forb	2	2.4%	B-Forb	0	0.0%
-2.6 NATIVE MEAN W	A-Forb	6	7.2%	A-Forb	0	0.0%
-2.5 W/Adventives	P-Grass	4	4.88	P-Grass	1	1.2%
AVG: Fac. Wetland	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	7	8.4%	P-Sedge	0	0.0%
	A-Sedge	1	1.2%	A-Sedge	0	0.0%
	Cryptogam	6	7.2%			

ACRONYM	C SCIENTIFIC NAME	W WETNESS	PHYSIOGNOMY COMMON NAME
ACERUB	7 Acer rubrum	0 FAC	Nt Tree RED MAPLE
ACESAI	0 Acer saccharinum	-3 FACW	Nt Tree SILVER MAPLE
AGAPUU	6 Agalinis purpurea	-3 FACW	Nt A-Forb PURPLE FALSE FOXGLOVE
ALISUB	4 Alisma subcordatum	-5 OBL	Nt P-Forb COMMON WATER PLANTAIN
AMBTRI	0 Ambrosia trifida	-1 FAC+	Nt A-Forb GIANT RAGWEED
APOSIB	2 Apocynum sibiricum	-1 FAC+	Nt P-Forb PRAIRIE INDIAN HEMP
ARTCAU	5 Artemisia caudata	5 UPL	Nt B-Forb BEACH WORMWOOD
ASTNOV	4 Aster novae-angliae	-3 FACW	Nt P-Forb NEW ENGLAND ASTER
ASTSIS	3 Aster simplex	-5 OBL	Nt P-Forb PANICLED ASTER
CALCAN	3 Calamagrostis canadensis	~5 OBL	Nt P-Grass BLUE JOINT GRASS
CALTPA	5 Caltha palustris	-5 OBL	Nt P-Forb MARSH MARIGOLD
CXATHE	5 Carex atherodes	-5 QBL	Nt P-Sedge HAIRY-LEAVED LAKE SEDGE
CXHAYD	6 Carex haydenii	-5 OBL	Nt P-Sedge LONG-SCALED TUSSOCK SEDGE
CXLACU	6 Carex lacustris	-5 OBL	Nt P-Sedge COMMON LAKE SEDGE
CXSTRI	5 Carex stricta	-5 OBL	Nt P-Sedge COMMON TUSSOCK SEDGE
CICMAC	6 Cicuta maculata	-5 OBL	Nt P-Forb WATER HEMLOCK
CIRMUT	10 Cirsium muticum	-5 OBL	Nt B-Forb SWAMP THISTLE
CORTRP	5 Coreopsis tripteris	0 FAC	Nt P-Forb TALL COREOPSIS
CRYCAN	2 Cryptotaenia canadensis	0 FAC	Nt P-Forb HONEWORT

CIVID TIV	4 (4 TED CITY	NE N Codes	DROOK NUM GERGE
CYPRIV	4 Cyperus rivularis	-4 FACW+	. •	BROOK NUT SEDGE
CYPCPU		l [FAC+]	Nt P-Forb LA	ARGE YELLOW LADY'S SLIPPER
DRYTHP	6 Dryopteris t. pubescens	-5 [OBL]	Cryptogam	MARSH SHIELD FERN
ELEACI	2 Eleocharis acicularis	-5 QBL	Nt P-Sedge	NEEDLE SPIKE RUSH
ELEERY	2 Eleocharis erythropoda	-5 OBL	Nt P-Sedge	RED-ROOTED SPIKE RUSH
			•	
ELYVIR	4 Elymus virginicus	-2 FACW-	Nt P-Grass	VIRGINIA WILD RYE
EQUHYE	3 Equisetum hyemale	-2 FACW-	Cryptogam	TALL SCOURING RUSH
ERIPHI	4 Erigeron philadelphicus	-3 FACW	Nt P-Forb	MARSH FLEABANE
EUPALT	0 Eupatorium altissimum	3 [FACU]	Nt P-Forb	TALL BONESET
EUPPER	4 Eupatorium perfoliatum	-4 FACW+	Nt P-Forb	COMMON BONESET
		0 FAC		
GALBOR	7 Galium boreale		Nt P-Forb	NORTHERN BEDSTRAW
GALOBT	5 Galium obtusum	-4 FACW+	Nt P-Forb	WILD MADDER
GERMAC	4 Geranium maculatum	5 [UPL]	Nt P-Forb	WILD GERANIUM
HELGRO	2 Helianthus grosseserratus	-2 FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER
HYPHIR	9 Hypoxis hirsuta	0 FAC	Nt P-Forb	YELLOW STAR GRASS
	• •	-3 FACW	Nt A-Forb	
IMPCAP	3 Impatiens capensis			ORANGE JEWELWEED
IRIVIS	5 Iris virginica shrevei	-5 OBL	Nt P-Forb	BLUE FLAG
JUNACU	6 Juncus acuminatus	-5 QBL	Nt P-Forb	SHARP-FRUITED RUSH
JUNBRP	9 Juncus brachycephalus	-5 QBL	Nt P-Forb	SHORT-HEADED RUSH
JUNTOR	4 Juncus torreyi	-3 FACW	Nt P-Forb	TORREY'S RUSH
		-1 FAC+	Nt P-Forb	
LILMIC	6 Lilium michiganense			TURK'S CAP LILY
LONMAA	0 LONICERA MAACKII	5 UPL	Ad Shrub	AMUR HONEYSUCKLE
LYCUNI	7 Lycopus uniflorus	-5 QBL	Nt P-Forb	NORTHERN BUGLE WEED
LYTSAL	0 LYTHRUM SALICARIA	-5 QBL	Ad P-Forb	PURPLE LOOSESTRIFE
ONOSEN	8 Onoclea sensibilis	-3 FACW	Cryptogam	SENSITIVE FERN
OSMCIN	7 Osmunda cinnamomea	-3 FACW		CINNAMON FERN
			Cryptogam	
OSMRES	8 Osmunda r. spectabilis	-5 OBL	Cryptogam	ROYAL FERN
OXYRIG	7 Oxypolis rigidior	-5 OBL	Nt P-Forb	COWBANE
PANVIR	5 Panicum virgatum	-1 FAC+	Nt P-Grass	SWITCH GRASS
PEDLAN	9 Pedicularis lanceolata	-5 [OBL]	Nt P-Forb	FEN BETONY
PHAARU	0 PHALARIS ARUNDINACEA	-4 FACW+	Ad P-Grass	REED CANARY GRASS
PHRAUS	1 Phragmites australis	-4 FACW+	Nt P-Grass	COMMON REED
POLAMS	4 Polygonum a. stipulaceum	-5 QBL	Nt P-Forb	WATER KNOTWEED
POLLAP	0 Polygonum lapathifolium	-4 FACW+	Nt A-Forb	HEARTSEASE
POLSAG	8 Polygonum sagittatum	-5 OBL	Nt A-Forb	ARROW-LEAVED TEAR-THUMB
POPALB	0 POPULUS ALBA	5 UPL	Ad Tree	
				WHITE POPLAR
POPDEL	2 Populus deltoides	-1 FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4 Populus tremuloides	0 FAC	Nt Tree	QUAKING ASPEN
PTEAQL	5 Pteridium a. latiusculum	3 FACU	Cryptogam	BRACKEN FERN
PYCTEN	7 Pycnanthemum tenuifolium	0 FAC	Nt P-Forb	SLENDER MOUNTAIN MINT
PYCVIR	<u>-</u>	-4 FACW+	Nt P-Forb	
	5 Pycnanthemum virginianum			COMMON MOUNTAIN MINT
RANABO	0 Ranunculus abortivus	-2 FACW-	Nt A-Forb	SMALL-FLOWERED BUTTERCUP
RHUCOL	6 Rhus copallina latifolia	5 UPL	Nt Shrub	SHINING SUMAC
RUBHIS	9 Rubus hispidus	-3 FACW	Nt Shrub	SWAMP DEWBERRY
RUMORB	8 Rumex orbiculatus	-5 OBL	Nt P-Forb	GREAT WATER DOCK
SALBAB	0 SALIX BABYLONICA	-3 FACW	Ad Tree	WEEPING WILLOW
SALDIS	2 Salix discolor	-3 FACW	Nt Shrub	PUSSY WILLOW
SAMCAN	1 Sambucus canadensis	-2 FACW-	Nt Shrub	ELDERBERRY
SAXPEN	10 Saxifraga pensylvanica	-3 FACW	Nt P-Forb	SWAMP SAXIFRAGE
SCIFLU	4 Scirpus fluviatilis	-5 OBL	Nt P-Sedge	RIVER BULRUSH
SCUEPI	5 Scutellaria epilobiifolia	-5 OBL		
			Nt P-Forb	MARSH SKULLCAP
SENPAU	6 Senecio pauperculus	-1 FAC+	Nt P-Forb	BALSAM RAGWORT
SISALB	7 Sisyrinchium albidum	3 FACU	Nt P-Forb	COMMON BLUE-EYED GRASS
SIUSUA	7 Sium suave	-5 OBL	Nt P-Forb	TALL WATER PARSNIP
SOLGIG	4 Solidago gigantea	-3 FACW	Nt P-Forb	LATE GOLDENROD
	_ , , & & &		_	
SOLGRN				RY GRASS-LEAVED GOLDENROD
SOLNEM	4 Solidago nemoralis	5 UPL	Nt P-Forb	OLD-FIELD GOLDENROD
STATET	8 Stachys tenuifolia	-3 [FACW]	Nt P-Forb	SMOOTH HEDGE NETTLE
STATEH	5 Stachys t. hispida	-4 FACW+	Nt P-Forb	MARSH HEDGE NETTLE
TYPANG	1 Typha angustifolia	-5 OBL	Nt P-Forb	NARROW-LEAVED CATTAIL
	** •			
TYPLAT	l Typha latifolia	-5 OBL	Nt P-Forb	BROAD-LEAVED CATTAIL
VERHAS	4 Verbena hastata	-4 FACW+	Nt P-Forb	BLUE VERVAIN
VITRIP	2 Vitis riparia	-2 FACW-	Nt W-Vine	RIVERBANK GRAPE
ZIZAUR	7 Zizia aurea	-1 FAC+	Nt P-Forb	GOLDEN ALEXANDERS

Primary and secondary indicators of wetland hydrology were observed at both locations within Area 4b, satisfying the hydrology criterion.

The soil at Data Point 9 was classified as Adrian muck, taxadjunct. An A horizon of black (10YR 2/1) mucky loam was found from 0 to 20 inches in depth. This horizon contained oxidized root channels in the upper 12 inches of the horizon. Below this, a C horizon of grayish brown (10YR 5/2) sand was observed from 20 to 28 inches in depth. This horizon contained common distinct dark yellowish brown (10YR 4/6) redoximorphic features.

The soil profile at Data Point 11 was classified as Granby loamy fine sand. An A horizon of black (10YR 2/1) loam was found from 0 to 8 inches in depth. Below this, a Bg horizon of grayish brown (10YR 5/2) sand was observed from 8 to 27 inches in depth. This horizon contained common prominent dark gray (10YR 4/1) redoximorphic features and black (10YR 2/1) organic matter stains along some sand grains.

The soil profile at Data Point 9 exhibits hydric soil field indicator F1, Loamy Mucky Mineral, and satisfies the soils criterion. The soil profile at Data Point 11, while not exhibiting any hydric soil field indicators, is classified taxonomically as being poorly drained, and the presence of redoximorphic features within the profile and gray subsoil colors indicates that the upper portion of the profile is saturated for at least two weeks during the growing season, thereby satisfying the soils criterion.

All three wetland criteria are satisfied at Data Points 9 and 11, and Area 4b qualifies as wetland. Due to its closed depressional nature Area 4b is likely to be considered an isolated wetland, however, it is also part of the only remnant dune and swale complex found on Pilot Section 4. Therefore, while the wetland may not be under ACOE jurisdiction, discharges to this habitat complex may be regulated by the DEM.

Area 4c – Emergent Wetland

Data Point 14

Area 4c is a borrow pit centrally located along the northern property boundary of Pilot Section 4 (Photos 24, 27 and 28) that contains 0.86 acre of emergent wetland. Approximately 50% of Area 4c is unvegetated due to frequent disturbance from ATV traffic. A network of ATV trails crosses a majority of the northern half of Pilot Section 4 and a much smaller portion of the southern half. One data point was taken within a vegetated portion of Area 4c. The dominant plant species are Common Reed, Purple Loosestrife, Tall Scouring Rush, Slender Flatsedge (*Cyperus filiculmis*), Pussy Willow (*Salix discolor*), and Purple False Foxglove (*Agalinis purpurea*). Since more than 50% of the dominant species are hydrophytic, the vegetation criterion is satisfied. Despite moderate to severe degradation (i.e., earthwork, hydrologic manipulation, or non-native colonization) to certain portions of Area 4c, this wetland exhibits high floristic quality (NMC = 3.70, FQI = 20.50). The floristic quality calculations and plant species inventory for Area 4c are provided below.

FLORISTIC QUALITY DATA	Native	31	81.6%	Adventive	7	18.4%
31 NATIVE SPECIES	Tree	2	5.3%	Tree	0	0.0%
38 Total Species	Shrub	3	7.9%	Shrub	0	0.0%
3.7 NATIVE MEAN C	W-Vine	1	2.6%	W-Vine	1	2.6%
3.0 W/Adventives	H-Vine	1	2.6%	H-Vine	0	0.0%
20.5 NATIVE FQI	P-Forb	14	36.8%	P-Forb	4	10.5%
18.5 W/Adventives	B-Forb	0	0.0%	B-Forb	2	5.3%
-1.9 NATIVE MEAN W	A-Forb	1	2.6%	A-Forb	0	0.0%
-1.3 W/Adventives	P-Grass	2	5.3%	P-Grass	0	0.0%

AVG:	Fac.	Wetland (-)	A-Grass P-Sedge	0	0.0% 7.9%	A-Grass	0	0.0%
				3		P-Sedge	0	
			A-Sedge Cryptoga		0.0% 10.5%	A-Sedge	U	0.0%
			cryptoga	ш +	10.24			
ACRONYM		SCIENTIFIC NAME		WETNESS		COMMON NAME		
ACENEG		Acer negundo		FACW-	Nt Tree	BOX ELDER		
AGAPUU		Agalinis purpurea	-	FACW	Nt A-Forb	PURPLE FALS	E FOXGLO	VE
APIAME		Apios americana		FACW	Nt P-Forb	GROUND NUT		
ASTNOV		Aster novae-angliae		FACW	Nt P-Forb	NEW ENGLAND		
ASTPIL	0	Aster pilosus	2	FACU+	Nt P-Forb	HAIRY ASTER		
CORRAC	1.	Cornus racemosa		FACW-	Nt Shrub	GRAY DOGWOO	D	
CRYCAN	2			FAC	Nt P-Forb	HONEWORT		
CYPFIL		Cyperus filiculmis		FACU-	Nt P-Sedge	SLENDER SAN	D SEDGE	
CYPSCH		Cyperus schweinitzi	i 5	[Abr]	Nt P-Sedge	ROUGH SAND	SEDGE	
DAUCAR		DAUCUS CAROTA	5	\mathtt{UPL}	Ad B-Forb	QUEEN ANNE	S LACE	
EQUARV	0	Equisetum arvense	0	FAC	Cryptogam	HORSETAIL		
EQUHYE	3	4 · · · · · · 2 · · · · · · ·		FACW-	Cryptogam	TALL SCOURI	NG RUSH	
EUPMAM		Eupatorium maculatu		OBL	Nt P-Forb	SPOTTED JOE	PYE WE	ED
EUPPER		Eupatorium perfolia	tum -4	FACW+	Nt P-Forb	COMMON BONE	SET	
JUNDUD	4	Juncus dudleyi	0	[FAC]	Nt P-Forb	DUDLEY'S RU	JSH	
JUNTEN	0	Juncus tenuis	2	[FACU+]	Nt P-Forb	PATH RUSH		
JUNTOR	4	Juncus torreyi	- 3	FACW	Nt P-Forb	TORREY'S RU	JSH	
LYCAME		Lycopus americanus	_	OBL	Nt P-Forb	COMMON WATE	R HOREH	DUND
LYTALA	7	Lythrum alatum	-5	OBL	Nt P-Forb	WINGED LOOS	ESTRIFE	
LYTSAL	0	LYTHRUM SALICARIA	- 5	OBL	Ad P-Forb	PURPLE LOOS	SESTRIFE	
MELLOF		MELILOTUS OFFICINAL	IS 3	FACU	Ad B-Forb	YELLOW SWEE	T CLOVE	R
ONOSEN	8	Onoclea sensibilis	-3	FACW	Cryptogam	SENSITIVE F	ERN	
OSMCIN		Osmunda cinnamomea	- 3	FACW	Cryptogam	CINNAMON FI	ERN	
PANVIR	5	Panicum virgatum	-1	FAC+	Nt P-Grass	SWITCH GRAS	SS	
PEDLAN		Pedicularis lanceol		[OBL]	Nt P-Forb	FEN BETONY		
PHRAUS	1	Phragmites australi	s -4	FACW+	Nt P-Grass	COMMON REEL)	
PHYVIV		Physostegia virgini	ana -5	[OBL]	Nt P-Forb	OBEDIENT PI	ANT	
PLAMAJ		PLANTAGO MAJOR	-1	FAC+	Ad P-Forb	COMMON PLAN	TAIN	
POLSCN		Polygonum scandens	0	FAC	Nt H-Vine	CLIMBING FA	LISE BUC	KWHEAT
POPDEL	2	Populus deltoides	-1	. FAC+	Nt Tree	EASTERN COT	COOMOOT	
PRUVUV	0	PRUNELLA VULGARIS	5	[UPL]	Ad P-Forb	LAWN PRUNE	LLA	
SALDIS	2	Salix discolor	- 3	FACW	Nt Shrub	PUSSY WILL	W	
SAMCAN		Sambucus canadensis	-2	FACW-	Nt Shrub	ELDERBERRY		
SCIPUN	5	Scirpus pungens	- 5	OBL	Nt P-Sedge	CHAIRMAKER	S RUSH	
SOLDUL		SOLANUM DULCAMARA		FAC	Ad W-Vine	BITTERSWEET	NIGHTS	HADE
SOLGRG		Solidago graminifol		ACW-	Nt P-Forb	COMMON GRASS	-LEAVED	GOLDENROD
SOLSEM		SOLIDAGO SEMPERVIRE	NS 3	[FACU]	Ad P-Forb	SEASIDE GO	LDENROD	
VITRIP	2	Vitis riparia	-2	FACW-	Nt W-Vine	RIVERBANK (GRAPE	

Soil saturation was observed at a depth of 5 inches below the soil surface, which satisfies the hydrology criterion. In addition the presence of oxidized root channels within the upper 12 inches of soil and a positive FAC-neutral test reinforce the fact that wetland hydrology is present.

The soil at Data Point 14 was classified as a poorly drained Made Land (Aquents) mucky loamy sand. The A horizon from 0 to 2 inches consisted of a black (2.5Y 2/1) loamy sand with few prominent dark brown (7.5YR 3/3 and ¾) redoximorphic features and many fine roots. The ACg horizon from 2 to 4 inches consisted of a very dark gray (10YR 3/1) loamy sand, with few prominent dark yellowish brown (10YR 3/6) redoximorphic features. This horizon was stratified with dark gray (2.5Y 4/1) and light brownish gray (2.5Y 6/2) materials. The Cg1 horizon from 4 to 11 inches consisted of a dark gray (2.5Y 4/1) loamy sand with few prominent dark yellowish brown (10YR 4/6) redoximorphic features. The Cg2 horizon from 11 to 20 inches consisted of a gray (2.5Y 5/1) loamy sand, with few prominent dark yellowish brown (10YR 4/6) redoximorphic features. The Cg3 horizon from 20 to 28 inches consisted of a gray (5Y 4/1) loamy sand, with common prominent dark yellowish brown (10YR 4/6) redoximorphic features and few distinct light olive brown (2.5Y 5/4) redoximorphic features. This soil profile exhibits

hydric soil field indicator F1, Loamy Mucky Material and F6, Redox Dark Surface, satisfying the soils criterion.

All three wetland criteria are satisfied, so Area 4c qualifies as wetland. Because of its location in an old borrow pit this wetland is likely to be considered isolated and may not be under ACOE jurisdiction. However, discharges to the wetland are likely to be regulated by the DEM.

ENDANGERED AND THREATENED SPECIES

A request for records of endangered or threatened species records or Indiana high quality natural communities and natural areas in the vicinity of the study area was submitted to the Indiana Department of Natural Resources (INDNR) and to the US Fish and Wildlife Service, Region 3 (FWS) on February 5, 2002. Responses from these agencies were received by V3 on February 18 and March 7, 2002, respectively, indicating that eight listed species, six of which are listed both at the state and federal levels, are potentially located within or near the study area. A summary of this information is provided in Table 2. This table and copies of the agency correspondence are included in Appendix IV.

During the initial field investigation on January 11 and 14, 2002, the pilot sections were visually surveyed in an informal way for potential endangered or threatened species or their habitat. Accordingly, it was determined that Pilot Sections 1 and 4 have the highest habitat potential for listed species, although no listed plants or animals were observed at that time. These two sites retain moderate to poor quality dune or dune and swale habitat. Other sites investigated are heavily disturbed or fragmented and are unlikely to shelter listed species.

Because of the potential for endangered or threatened species, a more intensive on-site survey was conducted on May 28, 2002, to further evaluate habitat and attempt to locate populations of listed species indicated as being near the project area by the agencies. All plants and wildlife observed were recorded and habitats suitable for the species in Table 2 were investigated thoroughly in an attempt to locate extant populations and to evaluate the habitat quality. This investigation did not locate any listed species. However, suitable habitat for five species is present, mainly in Pilot Sections 1 and 4. These are: Mudpuppy (Pilot Section 5 AKA the J-pit), Karner Blue (based on the presence of Lupine in Pilot Sections 1 and 4, a small area on fill material in Pilot Section 2, and known populations within 0.5 mile), Franklin's Ground Squirrel (likely present in Pilot Section 4, Pilot Section 1 possible, but less likely) and Bush Honeysuckle (Pilot Section 4, based primarily on the presence of known associates - Bracken Fern, Wild Sarsaparilla, Sassafras, and Black Oak. In addition, rare savanna habitat is present in Pilot Sections 1 and 4 and in a very small portion of the southwestern corner of Pilot Section 3. Because this latter area is sandwiched between the large wetland in the southern half of Pilot Section 3 and 23rd Avenue it would likely be preserved. Since suitable habitat is available, and unless direct and indirect impacts to Pilot Sections can be avoided, further consultation with the IDNR Division of Nature Preserves, IDNR Division of Fish and Wildlife, and the US Fish and Wildlife (USFWS) may be warranted.

All plants and wildlife observed during the site visits are tabulated by pilot section in Appendix IV.

BASELINE ECOLOGICAL ASSESSMENT

The Risk-Integrated System of Closure (RISC) was developed in 1994 by the Indiana Department of Environmental Management (DEM) to bring all its cleanup programs under a uniform set of policies to improve consistency. RISC is a voluntary guidance policy that provides a framework within which the laws and rules governing environmental remediation of sites in Indiana.

Under RISC, three areas are considered especially sensitive to contamination:

- Geologically susceptible areas
- Wellhead protection areas
- Ecologically susceptible areas

The latter type represents most of the subject properties and was the focus of a process under RISC, known as Susceptible Areas Evaluation, to evaluate the need for ecological cleanup. These areas are considered susceptible to contamination based on the unpredictable transport of pollutants, the exceptional ecological value of these areas, and the potential for increased human or ecological risk ensuing from contamination. Ecologically susceptible areas require consideration of contamination effects beyond those that affect humans. Some examples of ecologically susceptible areas include National and state parks, designated nature preserves and refuges, critical habitats for endangered, threatened species, or other sensitive species, prairie areas, dune and swale areas, surface waters of the state including wetlands or recharge areas, riparian habitats, breeding habitat for birds, mammals, retiles, amphibians or other wildlife, nursery habitats, overwintering habitats for migratory species, and other designated critical resource areas.

Four wetlands totaling approximately 18.27 acres are present within the 215-acre project area. In addition to the wetlands, a sand and gravel quarry, Black Oak savanna, dune and swale habitat, and old dune habitat are present. The wetlands generally are dominated by low-quality invasive vegetation, such as Common Reed (*Phragmites australis*), Purple Loosestrife (*Lythrum salicaria*), Reed Canary Grass (*Phalaris arundinacea*), and Narrow-leaved Cattail (*Typha angustifolia*), but some wetlands have a moderate to high potential for high-quality and rare species and may in fact sustain some of these species at present.

Pilot Section 1 does not contain any jurisdictional wetland areas, however, it does contain Black Oak savanna on remnant sand dunes. Pilot Section 3 has an approximately 6.39-acre emergent wetland and Black Oak savanna habitat complex in its southern part. Pilot Section 4 has an approximately 12.40-acre emergent wetland located in the southern half of the site. This large emergent wetland is partially surrounded by Black Oak savanna on higher remnant dunes, making it the largest remnant dune and swale complex identified during this investigation. The overall size of the dune and swale complex is approximately 18.00 acres and encompasses the southern half of Pilot Section 4, as defined by a fence that crosses the property. The northern half of Pilot Section 4 contains leveled dunes and a sand pit, but no intact dune and swale features. On September 3, 2003, the sand pit was re-evaluated which resulted in the addition of a 0.86-acre emergent wetland on the northern half of Pilot Section 4. The J-Pit consists of an

approximately 114.00-acre sand and gravel quarry maintained by pumping. Approximately thirty percent of the quarry is vegetated, primarily with Common Reed, while the remaining seventy percent consists of open water. Several other plant species were observed in limited abundance and distribution, but few would be considered high-quality or conservative species. These species are Narrow-leaved Cattail, Purple Loosestrife, Great Bulrush (Scirpus validus), Chairmaker's Rush (Scirpus pungens), Cocklebur (Xanthium strumarium), and Torrey's Rush (Juncus torreyi). Most of the open water portion of the quarry is inundated with a few inches of standing water (ranging from 1 to 5 inches), but several deeper areas appear to have been excavated to provide positive drainage within the quarry. Water level in the quarry may be partially dependent on functioning pumps, which remove excess groundwater from the surrounding region. However, the exposed shoreline during low water periods may provide suitable habitat for a variety of shorebirds.

Pilot Sections 1, 2, and 3 appear to have been the most severely affected by past human activities. The northern half of Pilot Section 4 has apparently been partially mined for an unknown purpose, leaving a shallow pit that retains water extended periods and was determined to be wetland (Area 4c). Pilot Section 1 abuts a former junkyard, and is probably at the highest risk for contaminants, but no suspected sources or indication of past contamination was observed. Pilot Section 2 was subdivided and partially developed with the addition of pavement, but was not completed for unknown reasons. The only contemporary large-scale source for potential contaminants is a landfill located east of Pilot Section 5 (AKA the "J-pit"). Because of landfill requirements and precautions against the escape of potential environmental toxins, it seems unlikely that contaminants enter the subject properties from this source.

Because substantial vegetative growth continues at each of the pilot sections, including some high-quality, habitat-specific, or rare species, it appears that pollution is not a factor influencing these properties. In similar fashion, wildlife use of these sites does not appear to be significantly affected by past or present land use activities; although some species may have been extirpated by ecological changes resulting from sand or gravel mining or other land uses, there do not appear to be persistent effects from past or present contamination. Even though it seems likely that some species now listed as endangered, threatened or special concern may once have been present, their absence now is not directly or indirectly related to contamination of the subject properties, but is more likely to be a result of habitat modification or degradation from non-hazardous sources, such as road salt or grading. Thus, while some of the subject properties, notably Pilot Sections 1 and 4, remain ecologically significant, cleanup of past pollution apparently is not required.

Table 1. Wetland Data Point Summary of Areas Investigated for the J-Pit Redevelopment Project.

Pilot Section	Data Point	Vegetation	Hydrology	Soils	Wetland?
1	1				N
1	2				N
1	3				N
1	4				N
2a	5				N
2a	7			X	N
2b	6	X	X	X	Y
3a	18	X			N
3a	19				N
3a	21				N
3b	22				N
3c	20	X	X	X	Y
3c	23	X	X	X	Y
4a	8				N
4a	10				N
4a	12				N
4a	13				N
4a	15	X			N
4a	16				N
4a	17				N
4b	9	X	X	X	Y
4b	11	X	X	X	Y
4c	14	X	X	X	Y

REFERENCES CITED

- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Corps of Engineers, Washington, D.C.
- Soil Survey of Lake County, Indiana. 1972. U.S. Government Printing Office, Washington, D.C.
- Swink, F. and G. Wilhelm. 1994. Plants of the Chicago Region. 4th Edition. Indianapolis: Indiana Academy of Science.
- United States Department of Agriculture. 1991. Hydric Soils of the United States. 3rd Edition. Miscellaneous Publication Number 1491.

APPENDIX I:

WETLAND DELINEATION DATA FORMS

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Woitczak, Neil Molstad, Tom Hintz

Project No: 01210.w21

Date: 11-Jan-2002

County: Lake

State: Indiana Plot ID: 1

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

Yes) Yes

(No) No Yes

Community ID: Transect ID:

Upland Area 1

Field Location:

Data Point 1

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Lonicera tatarica	Shrub	FACU*	Osmorhiza claytonii	Forb	FACU-
Honeysuckle, Tartarian	1		Sweetcicely,Halry		
Quercus velutina	Tree	UPL	Sanicula gregaria	Forb	FAC+
Black Oak			Black-Snakeroot,Clustered		
Sassafras albidum	Tree	FACU			
Sassafras					
			·		
					1
				•	
	7	1			j

(excluding FAC-)

1/5 = 20.00%

Remarks:

Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

N/A Other

YES No Recorded Data

Field Observations

N/A (in.)

Depth to Free Water in Pit:

N/A (in.)

> 34 (in.)

Wetland Hydrology Indicators

Primary Indicators

NO Inundated

NO Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

NO Drainage Patterns in Wetlands

Secondary Indicators

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

NO FAC-Neutral Test

NO Other(Explain in Remarks)

Remarks:

Saturated soil was not observed to a depth of 34 inches. This depth is too great to satisfy the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Marc Wojtczak, Neil Molstad, Tom Hintz

Project No: 01210.w21

11-Jan-2002

Investigators:

Applicant/Owner: City of Gary (DOEA)

County: Lake

Date:

State: Indiana Plot ID: 1

SOILS

Map Symbol: 501

Map Unit Name (Series and Phase):

Morocco loamy fine sand Drainage Class: Somewhat poorly drained

Mapped Hydric Inclusion?

Field Observations Confirm Mapped Type? Yes No

Taxonomy (Subgroup): Aquic Udipsamments

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mot Abundance		Texture, Concretions, Structure, etc
0 - 3	Α	10YR3/2	N/A	N/A	N/A	Sand
3 - 5	Bw1	10YR6/2	N/A	N/A	N/A	Sand
5 - 10	Bw2	10YR6/3	10YR6/4	Common	Faint	Sand
10 - 34	Bw3	10YR7/3	10YR4/6	Few	Distinct	Sand

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime

NO Reducing Conditions

NO Gleyed or Low Chroma Colors

NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List

NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)	
Wetland Hydrology Present?	Yes (No)	·		
Hydric Soils Present?	Yes (No)			
				-

Remarks:

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad, Tom Hintz

Project No: 01210.w21

Date: 11-Jan-2002

County: Lake

State: Indiana Plot ID: 2

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

Yes) Yes

No Yes (No)

(No)

Community ID: Upland Transect ID: Area 1

Field Location:

Data Point 2

VEGETATION (USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Glechoma hederacea	Forb	FACU	Osmorhiza claytonii	Forb	FACU-
Creeping Charlie			Sweetcicely,Hairy		
Prunus serotina	Tree	FACU	Vitis riparia	Vine	FACW-
Cherry,Black	1		Grape,River-Bank		
Lonicera tatarica	Shrub	FACU*			
Honeysuckle,Tartarian					
					ļ
					l
Percent of Dominant Species that are OB	L. FACW o	r FAC:	FAC Neutral: 1/5 = 20.00%		1

(excluding FAC-)

1/5 = 20.00%

Remarks:

Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

Wetland Hydrology Indicators

Primary Indicators

NO Inundated

NO Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

NO Drainage Patterns in Wetlands

Secondary Indicators

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

NO FAC-Neutral Test

NO Other(Explain in Remarks)

Remarks:

Saturated soil was not observed to a depth of 21 inches. This depth is too great to satisfy the hydrology criterion,

N/A (in.)

N/A (in.)

> 21 (in.)

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

11-Jan-2002

Investigators:

Applicant/Owner: City of Gary (DOEA)

County: Lake Plot ID: 2

Date:

State: Indiana

Marc Wojtczak, Neil Molstad, Tom Hintz

SOILS

Map Unit Name (Series and Phase): Morocco Loamy Fine Sand, Taxadjunct

Map Symbol: 501t

Drainage Class: Somewhat poorly drained

Mapped Hydric Inclusion?

Field Observations Confirm Mapped Type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mot Abundance		Texture, Concretions, Structure, etc
0 - 5	Α	10YR2/1	N/A	N/A	N/A	Loam
5 - 7	Bw1	7.5YR4/6	N/A	N/A	N/A	Sand
7 - 21	Bw2	10YR5/4	10YR4/6	Common	Distinct	Sand
21+	BC	10YR7/3	N/A	N/A	N/A	Sand
		<u> </u>	I			

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

Taxonomy (Subgroup): Aquic Udipsamments

NO Sulfidic Odor

NO Aquic Moisture Regime

NO Reducing Conditions

NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List

NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soil criterion is not satisfied

NO Gleyed or Low Chroma Colors

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)	
Wetland Hydrology Present?	Yes (No)			
Hydric Soils Present?	Yes No			

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad, Tom Hintz

Project No: 01210.w21

Date: 11-Jan-2002

County: Lake State: Indiana

Plot ID: 3

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

Yes Yes

Yes) No (No) (No

Community ID: Upland Transect ID: Area 1

Field Location: Data Point 3

(If needed, explain on the reverse side)

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Sassafras albidum	Tree	FACU	Osmorhiza claytonii	Forb	FACU-
Sassafras			Sweetcicely,Hairy		
Quercus velutina	Tree	UPL	Lonicera tatarica	Shrub	FACU*
Black Oak			Honeysuckle,Tartarian		
	_				
Percent of Dominant Species that are OB					

(excluding FAC-)

Remarks:

None of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

Wetland Hydrology Indicators

Primary Indicators

NO Inundated

NO Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

NO Drainage Patterns in Wetlands

Secondary Indicators

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

NO FAC-Neutral Test

NO Other(Explain in Remarks)

Remarks:

Saturated soil was not observed to a depth of 28 inches. This depth is too great to satisfy the hydrology criterion.

N/A (in.)

N/A (in.)

> 28 (in.)

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

11-Jan-2002

Investigators:

Applicant/Owner: City of Gary (DOEA)

Marc Wojtczak, Neil Molstad, Tom Hintz

County: Lake State: Indiana

Plot ID: 3

Date:

SOILS

Map Symbol: 741

Map Unit Name (Series and Phase): Oakville Fine Sand

Drainage Class: Excessively drained

Mapped Hydric Inclusion?

pped Type? Yes (No)

Taxonomy (Subgroup): Typic Udipsamme Profile Description

ents	Field Observations	Confirm	Мар

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		ttle e/Contrast	Texture, Concretions, Structure, etc
0 - 3	Α	10YR2/1	N/A	N/A	N/A	Loamy sand
3 - 25	Bw	10YR6/6	N/A	N/A	N/A	Sand
25 - 28	BC	10YR6/4	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime

NO Reducing Conditions NO Gleyed or Low Chroma Colors **NO Concretions**

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List

NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	· · · · · · · · · · · · · · · · · · ·
Hydric Soils Present?	Yes (No)	
A		

(1987 COE Wetlands Delineation Manual)

Project/Site: J

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad, Tom Hintz

Project No: 01210.w21

Date: 11-Jan-2002

County: Lake

State: Indiana Plot ID: 4

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?
(If needed, explain on the reverse side)

Yes No

NO NO

Community ID: Upland Transect ID: Area 1

Field Location:

Data Point 4

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Yes

Indicato	Stratum	Plant Species(Latin/Common)	r Pl	Indicator	Stratum	Dominant Plant Species(Latin/Common)
UPL	Shrub	Ribes cynosbati		FACU*		Lonicera tatarica
	1	Prickly Wild Gooseberry	Pr			Honeysuckle, Tartarian
FAC	Forb	Lactuca serriola	La	FACU	Tree	Prunus serotina
		Lettuce,Prickly	Le			Cherry,Black
	-		-		-	
	<u> </u>					
			+		<u> </u>	
	-		-		1	
1						
	 	The Contract of the Contract o	+			
	-		-		1	
	1				1	
	-	FAC Neutral: 0/3 = 0.00%		r FAC:	, FACW o	Percent of Dominant Species that are OBL (excluding FAC-) 1/4 = 25.00%

Remarks:

Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

NO Inundated

Primary Indicators

Wetland Hydrology Indicators

NO Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

NO Drainage Patterns in Wetlands

Secondary Indicators

N/A (in.)

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

NO FAC Name of Total

NO FAC-Neutral Test

NO Other(Explain in Remarks)

Remarks:

Saturated soil was not observed to a depth of 33 inches. This depth is too great to satisfy the hydrology criterion.

N/A (in.)

> 33 (in.)

(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	Project No: 01210.w21	Date:	11-Jan-2002
Applicant/Owner:	City of Gary (DOEA)	•	County:	Lake
Investigators:	Marc Wojtczak, Neil Molstad, Tom Hintz		State:	Indiana
			Plot ID:	4

SOILS

			Morocco Loamy Fi		axadjunct			
		Drainage Class:		drained	Марр	ped Hydric Inclusion?		
		p): Aquic Udipsamı	ments		Field Obse	ervations Confirm Mapped Type? Yes (No)		
Profile Des	scription							
Depth		Matrix Color	Mottle Color	M	ottle			
(inches)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundan	ce/Contrast	Texture, Concretions, Structure, etc		
0 - 4	A	10YR2/1	N/A	N/A	N/A	Loam		
4-8	Ав	10YR4/3	N/A	N/A	N/A	Silt loam		
8 - 33	Bw	2.5Y7/3	10YR4/6	Few	Prominent	Sand		
Hydric Sc	oii Indicator NO Histo			NO C	oncretions			
		Epipedon				content in Surface Layer in Sandy Soils		
	NO Sulfic							
		c Moisture Regime	}	NO Organic Streaking in Sandy Soils NO Listed on Local Hydric Soils List				
		cing Conditions		NO Listed on National Hydric Soils List				
		ed or Low Chroma	Colors	NO Other (Explain in Remarks)				
Remarks		at observed so the so	ile criterion is not coti			,		

WETLAND DETERMINATION

Remarks: This location fails all three criteria and does not qualify as wetland.	Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	Yes No Yes No Yes No	Is the Sampling Point within the Wetland?	Yes (No)
This location fails an tiffee criteria and does not qualify as wetland.				
	his location fails all three criteria and c	oes not qualify as wetla	nd.	

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad, Tom Hintz

Project No: 01210.w21

14-Jan-2002 Date:

County: Lake State: Indiana

Plot ID: 5

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

(Yes) No Yes (No)

(No

Community ID:

Upland

Transect ID: Area 2a Field Location:

Data Point 5

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Yes

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Poa pratensis	Grass	FAC-	Ulmus pumila	Tree	NI
Bluegrass,Kentucky	7		Siberian Elm		
Agropyron repens	Grass	FACU	Ammophila breviligulata	Grass	UPL*
Quackgrass	1		Marram Grass		
Panicum dichotomiflorum	Grass	FACW-			-
Knee Grass	7				
`	7				
					· · · · · · · · · · · · · · · · · · ·
	7				
	1				
	1				
					*
	1				
Percent of Dominant Species that are OBL (excluding FAC-) 1/4 = 25.00%	, FACW o	r FAC:	FAC Neutral: 1/3 = 33.33%	_	

Remarks:

Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks): N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

Wetland Hydrology Indicators

Primary Indicators

NO Inundated

NO Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

NO Drainage Patterns in Wetlands

Secondary Indicators

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

NO FAC-Neutral Test

NO Other(Explain in Remarks)

Remarks:

Saturated soil was not observed to a depth of 27 inches. This depth is too great to satisfy the hydrology criterion.

N/A (in.)

N/A (in.)

> 27 (in.)

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

14-Jan-2002 Date:

Applicant/Owner: City of Gary (DOEA)

County: Lake State: Indiana

Investigators:

Marc Wojtczak, Neil Molstad, Tom Hintz

Plot ID: 5

SOILS

Map Unit Name (Series and Phase): Map Symbol: ML

Made Land

Drainage Class: unknown

Mapped Hydric Inclusion? none

Taxonomy (Subgroup): Orthents

Profile Description

Field Observations Confirm Mapped Type? Yes No.

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		ottle ce/Contrast	Texture, Concretions, Structure, etc
0-9	Mixed Fill	10YR6/3	10YR4/6	Few	Distinct	Sand, some decomposed organic material present
9 - 27	Mixed Fill	10YR7/3	N/A	N/A	N/A	Sand, occasioanl thin bands of darker material

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime **NO Reducing Conditions**

NO Gleyed or Low Chroma Colors

NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List

NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Ye s (No)	Is the Sampling Point within the Wetland?	Yes (No)
Wetland Hydrology Present?	Yes (No)		<u> </u>
Hydric Soils Present?	Yes No		
		· · · · · · · · · · · · · · · · · · ·	

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Woitczak, Neil Molstad

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake State: Indiana

Plot ID: 7

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

Yes) Yes

No (No) (Yes) Νo

Community ID: Upland Transect ID: Area 2a

Field Location: Data Point 7

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Prunus serotina Tree FACU		Osmorhiza claytonii F		FACU-	
Cherry,Black			Sweetcicely,Hairy		
Acer negundo	Tree	FACW-	Rubus allegheniensis	Shrub	FACU+
Box-Elder			Blackberry, Allegheny		
Alliaria petiolata	Forb	FAC	Lonicera maackii	Shrub	UPL
Garlic Mustard			Amur Honeysuckle		
Percent of Dominant Species that are OB	- EACW o	r EAC:	FAC Neutral: 1/5 = 20.00%		

Remarks:

(excluding FAC-)

Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks): N/A Stream, Lake or Tide Gauge

2/6 = 33.33%

N/A Aerial Photographs

N/A Other

YES No Recorded Data

Field Observations

Depth to Free Water in Pit:

N/A (in.)

Depth to Saturated Soil:

Depth of Surface Water:

> 40 (in.)

N/A (in.)

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Sediment Deposits

NO Local Soil Survey Data

NO FAC-Neutral Test

Wetland Hydrology Indicators

NO Inundated

NO Drift Lines

Secondary Indicators

NO Water Marks

Primary Indicators

NO Other(Explain in Remarks)

NO Saturated in Upper 12 Inches

NO Drainage Patterns in Wetlands

Remarks:

Saturated soil was not observed to a depth of 40 inches. This depth is too great to satisify the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	Project No: 01210.w21	Date:	14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)	-	County:	: Lake
Investigators:	Marc Wojtczak, Neil Molstad		State:	Indian a
			Plot ID:	7

SOILS

Map Unit	Name (Seri	es and Phase):	Granby Loamy Fin	e Sand			
		Drainage Class:		Mapped Hydric Inclusion? Marsh			
		p): Ty pi c Hapl a quol	lls		Field Obse	ervations Confirm Mapped Type? Yes No	
Profile Des	scription						
Depth		Matrix Color	Mottle Color	Mo	ttle		
(inches)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundanc	e/Contrast	Texture, Concretions, Structure, etc	
0 - 13	Α	10YR2/1	7.5YR3/4	Few	Prominent	Sandy loam	
13 - 32	Bg1	10YR6/2	10YR4/6	Common	Distinct	Sand, some mixing between the first and second horizon observed	
32 - 40	Bg2	10YR6/3	10YR4/6	Common	Distinct	Sand	
			10YR5/6	Common	Distinct		
Hydric Sc	oil Indicator	s:					
	NO Histo	sol		NO Co	ncretions		
	NO Histi	c Epipedon		NO High Organic Content in Surface Layer in Sandy Soils			
	NO Sulfi	dic Odor		NO Organic Streaking in Sandy Soils			
	<u>YES</u> Aqui	c Moisture Regime)	YES Listed on Local Hydric Soils List			
		icing Conditions		YES Listed on National Hydric Soils List			
	YES Gley	ed or Low Chroma	Colors	NO Other (Explain in Remarks)			

Remarks:

Although no hydric soil field indicators were observed, this profile satisfies the soils criterion. A complete explanation is provided at the bottom of this dataform.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	Yes (No) Yes (No) (Yes) No	Is the Sampling Point within the Wetland?	Yes (No)
Remarks: This location fails the vegetation and hy	/drology criteria and do	es not qualify as wetland.	

Explanation for response to: Normal Circumstances? Atypical Situation? Potential Problem Area?

No hydric soil field indicators were observed in the soil profile at this location, yet the soil is classified taxonomically as being poorly drained.

Additional evidence such as the presence of gray sandy subsoil and of redoximorphic features throughout the profile indicate that the upper portion of the soil profile is saturated for at least two weeks during the growing season, satisfying the soils criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

14-Jan-2002 Date:

County: Lake State: Indiana

Plot ID: 6

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area? (If needed, explain on the reverse side) (Yes)

Yes) No Yes (No No

Wetland Community ID:

Transect ID: Area 2b

Field Location:

Data Point 6

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Populus deltoides	Tree	FAC+	Helianthus grosseserratus	Forb	FACW-
Cotton-Wood,Eastern	1		Sunflower,Saw-Tooth		
Osmorhiza claytonii	Forb	FACU-	Sanicula gregaria	Forb	FAC+
Sweetcicely,Hairy			Black-Snakeroot,Clustered		
Populus tremuloides	Tree	FAC	Solidago altissima	Forb	FACU
Quaking Aspen	7		Golden-Rod,Tall		
Rubus allegheniensis	Shrub	FACU+	Vitis riparia	Vine	FACW-
Blackberry, Allegheny			Grape,River-Bank		
Percent of Dominant Species that are OB	L, FACW o	r FAC:	FAC Neutral: 2/5 = 40.00%		

(excluding FAC-)

5/8 = 62.50%

Remarks:

Greater than 50% of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

N/A (in.)

N/A (in.)

> 39 (in.)

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

Wetland Hydrology Indicators

Primary Indicators

NO Inundated

NO Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

YES Drainage Patterns in Wetlands

Secondary Indicators

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

NO FAC-Neutral Test

YES Other(Explain in Remarks)

Remarks:

The presence of primary (drainage patterns) and secondary (buttressed trees) wetland hydrology indicators were observed, so the hydrology criterion is satisfied.

(1987 COE Wetlands Delineation Manual)

Project/Site:

Investigators:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake State: Indiana

Plot ID: 6

SOILS

Map Unit Name (Series and Phase):

Granby Loamy Fine Sand

Map Symbol: 513

Drainage Class: poorly drained

Mapped Hydric Inclusion? Marsh

Field Observations Confirm Mapped Type? Yes (No)

Taxonomy (Subgroup): Typic Haplaquolls

Profile Description

Depth Matrix Color Mottle Color Mottle (inches) Horizon Texture, Concretions, Structure, etc. (Munsell Moist) (Munsell Moist) Abundance/Contrast 0 - 11 10YR2/1 N/Ä N/A N/A Loamy sand 11 - 21 Bg 10YR6/2 10YR4/6 Common Prominent Sand 21 - 39 c 10YR6/4 10YR4/6 Common Distinct Sand, stratified with 10YR2/1 & 10YR7/1

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

YES Aquic Moisture Regime

NO Reducing Conditions YES Gleyed or Low Chroma Colors NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils YES Listed on Local Hydric Soils List

YES Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Although no field indicators of hydric soil were observed, this location satisfies the soils criterion. Please see the bottom of this dataform for a complete explanation.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland?	(Yes) No
		to the Samping Fourt Within the Wetland	(103) 110
Wetland Hydrology Present?	(Yes) No		_
	(33)	1	
Hvdric Soils Present?	(Yes) No		
	(100)		
lì			

Remarks:

This location satisfies all three criteria and qualifies as wetland.

Explanation for response to: Normal Circumstances? Atypical Situation? Potential Problem Area?

The soil profile at this location is classified taxonomically as being poorly drained, but does not exhibit any hydric soil field indicators. However, additional evidence such as the depressional landscape position of the location and the presence of gray sandy subsoil material indicates that the soil profile is subject to extended periods of saturation or inundation, satisfying the soils criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA) Investigators:

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake State: Indiana Plot ID: 18

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

Yes) No Yes

(No) (No) Yes

Community ID: Upland Transect ID: Area 3a

Field Location: Data Point 18

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Suatum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Forb		Phragmites australis	Grass	FACW+
		Reed,Common		
1				
		· · · · · · · · · · · · · · · · · · ·		
				<u> </u>
-{				
, FACW o				
			Forb OBL Phragmites australis	Forb OBL Phragmites australis Grass

Remarks:

Both of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

Wetland Hydrology Indicators

Primary Indicators

NO inundated

NO Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

NO Drainage Patterns in Wetlands

Secondary Indicators

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

YES FAC-Neutral Test

NO Other(Explain in Remarks)

Remarks:

Saturated soil was not observed to a depth of 37 inches. This depth is too great to satisfy the hydrology criterion.

N/A (in.)

N/A (in.)

> 37 (in.)

(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project

Taxonomy (Subgroup): Orthents

Profile Description

Applicant/Owner: City of Gary (DOEA) Marc Wojtczak, Neil Molstad Investigators:

14-Jan-2002 Date:

> County: Lake State: Indiana

Plot ID: 18

SOILS

Map Unit Name (Series and Phase): Made Land

Map Symbol: ML Drainage Class: unknown

Mapped Hydric Inclusion? none

Project No: 01210.w21

Field Observations Confirm Mapped Type? Yes No.

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		ttle e/Contrast	Texture, Concretions, Structure, etc
0-9	Mixed Fill	10YR2/1	N/A	N/A	N/A	Sandy loam, mixed with 10YR2/2
9 - 20	ixed Fill	N2.5/	N/A	N/A	N/A	Sandy loam, mixed with some 10YR5/1 sand
20 - 31	C1	10YR5/2	N/A	N/A	N/A	Sand, mixed with 10YR6/2
31 - 37	C2	10YR6/2	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime

NO Reducing Conditions NO Gleyed or Low Chroma Colors NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Domoska.			
Hydric Soils Present?	Yes No		
Wetland Hydrology Present?	Yes (No)		•
Hydrophytic Vegetation Present?	Yes No	Is the Sampling Point within the Wetland?	Yes No

This location fails the hydrology and soils criteria and does not qualify as wetland.

(1987 COE Wetlands Delineation Manual)

J-Pit Redevelopment Project Project/Site: Project No: 01210.w21 14-Jan-2002 Date: Applicant/Owner: City of Gary (DOEA) County: Lake

Marc Wojtczak, Neil Molstad Investigators: State: Indiana Plot ID: 19

Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area? (If needed, explain on the reverse side) Yes) No Yes (No) (No Yes

Community ID: Upland Transect ID: Area 3a

Field Location: Data Point 19

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Ageratina altissima	Forb	FACU	Desmodium glutinosum	Forb	UPL
Snakeroot,White			Pointed Tick Trefoil		
Andropogon gerardii	Grass	FAC-	Poa pratensis	Grass	FAC-
Big Bluestem Grass			Blu e grass,Kentucky		
	-				
		†			
	_				
Percent of Dominant Species that are OB (excluding FAC-) 0/4 = 0.00%	L, FACW o	r FAC:	FAC Neutral: 0/2 = 0.00%	_	

Remarks:

None of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks): N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

N/A Other

YES No Recorded Data

Field Observations

Depth to Free Water in Pit:

N/A (in.)

N/A (in.)

Depth to Saturated Soil: > 34 (in.)

NO Local Soil Survey Data

NO FAC-Neutral Test

Wetland Hydrology Indicators

NO Inundated

NO Drift Lines

Secondary Indicators

NO Water Marks

NO Sediment Deposits

Primary Indicators

NO Other(Explain in Remarks)

NO Water-Stained Leaves

NO Saturated in Upper 12 Inches

NO Drainage Patterns in Wetlands

NO Oxidized Root Channels in Upper 12 Inches

Remarks:

Saturated soil was not observed to a depth of 34 inches. This depth is too great to satisfy the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

14-Jan-2002

Applicant/Owner: City of Gary (DOEA)

County: Lake State: Indiana

Date:

Investigators:

Marc Wojtczak, Neil Molstad

Plot ID: 19

SOILS

Map Symbol: ML

Profile Description

Map Unit Name (Series and Phase): Made Land

Mapped Hydric Inclusion? none

Drainage Class: unknown Taxonomy (Subgroup): Orthents

Field Observations Confirm Mapped Type? Yes No.

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Molst)	l l		Texture, Concretions, Structure, etc
0-5	Fill	10YR4/2	N/A	N/A	N/A	Sand
5 - 20	Fill	10YR6/6	N/A	N/A	N/A	Sand
20 - 27	Ab	10YR2/1	N/A	N/A	N/A	Sandy loam
27 - 34	Cb	2.5Y5/2	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime

NO Reducing Conditions NO Gleyed or Low Chroma Colors NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List

NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)
Wetland Hydrology Present?	Yes No		
Hydric Soils Present?	Yes No	·	

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators: Marc Woitczak, Neil Molstad Project No: 01210.w21

Date: 14-Jan-2002

County: Lake

State: Indiana Plot ID: 21

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

(Yes)

No Yes (No (No Yes

Community ID:

Upland Area 3a

Transect ID: Field Location:

Data Point 21

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Oenothera biennis	Forb	FACU	Populus deltoides	Tree	FAC+
Evening-Primrose,Common			Cotton-Wood,Eastern		
Daucus carota	Forb	UPL	Poa pratensis	Grass	FAC-
Wild Carrot, Queen Anne's Lace			Bluegrass,Kentucky		
Achillea millefolium	Forb	FACU	Aster dumosus	Forb	FAC+
Yarrow	7		Bushy Aster		
	-	-			
	1			'	
	_				
Percent of Dominant Species that are OB (excluding FAC-) 2/6 = 33.33%	L, FACW o	r FAC:	FAC Neutral: 0/3 = 0.00%		

Remarks:

Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

Wetland Hydrology Indicators

Primary Indicators

NO Inundated

NO Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

NO Drainage Patterns in Wetlands

Secondary Indicators

N/A (in.) NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

NO FAC-Neutral Test

NO Other(Explain in Remarks)

Remarks:

Saturated soil was not observed to a depth of 26 inches. This depth is too great to satisfy the hydrology criterion.

N/A (in.)

> 26 (in.)

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake State: Indiana

Plot ID: 21

SOILS

Map Symbol: ML

Map Unit Name (Series and Phase): Made Land

Drainage Class: unknown

Mapped Hydric Inclusion? none

Field Observations Confirm Mapped Type? Yes No

Taxonomy (Subgroup): Orthents Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		ttle e/Contrast	Texture, Concretions, Structure, etc
0-6	A	2.5Y2.5/1	N/A	N/A	N/A	Loamy sand
6 - 16	C1	10YR6/4	N/A	N/A	N/A	Sand
16 - 26	C2	10YR7/3	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor NO Aquic Moisture Regime

NO Reducing Conditions NO Gleyed or Low Chroma Colors **NO Concretions**

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes No	

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Marc Wojtczak, Louis Moran, Desiree Tazelaar Investigators:

Project No: 01210.w21

Date: 4-Sep-2003

County: Lake Indiana

State: Plot ID: 22

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

Yes) No Yes

No No.

Community ID:

Upland, remnant dune

Transect ID:

Area 3b

Field Location:

Data Point 22

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Yes

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Helianthus divaricatus	Forb	UPL	Rubus occidentalis	Shrub	UPL
Woodland Sunflower	1	1	Black Raspberry		
Desmodium glutinosum	Forb	UPL	Solidago altissima	Forb	FACU
Pointed Tick Trefoil			Golden-Rod,Tall		1
Quercus velutina	Tree	UPL	Carex pensylvanica	Sedge	UPL
Black Oak			Common Oak Sedge		ļ
		ļ			
					<u> </u>
					ļ
Percent of Dominant Species that are OB (excluding FAC-) 0/6 = 0.00%	L, FACW o	r FAC:	FAC Neutral: 0/6 = 0.00%		1

Remarks:

None of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

N/A (in.)

> 25 (in.)

N/A (in.)

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves **NO Local Soil Survey Data**

Wetland Hydrology Indicators

NO Inundated

NO Water Marks

NO Sediment Deposits

NO Drift Lines

Secondary Indicators

Primary Indicators

NO FAC-Neutral Test

NO Other(Explain in Remarks)

NO Saturated in Upper 12 Inches

NO Drainage Patterns in Wetlands

Remarks:

Saturated soil was not observed to a depth of 25 inches. This depth is too great to satisfy the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

4-Sep-2003

Investigators:

Profile Description

Applicant/Owner: City of Gary (DOEA)

County: Lake

State: Indiana Plot ID: 22

Date:

Marc Wojtczak, Louis Moran, Desiree Tazelaar

SOILS

Map Unit Name (Series and Phase):

Taxonomy (Subgroup): Aquic Udipsamments

Morocco Loamy Fine Sand, Taxadjunct

Map Symbol: 501t Drainage Class: Somewhat poorly drained

Mapped Hydric Inclusion?

Field Observations Confirm Mapped Type? Yes No.

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-5	Ар	2.5Y2.5/1	N/A	N/A	N/A	Sandy loam, many fine roots
5 - 8	Α	2.5Y2.5/1	N/A	N/A	N/A	Sandy loam, roots
8 - 11	AB	10YR3/3	N/A	N/A	N/A	Loamy sand, mixed w/ 10YR3/1
11 - 17	Bw1	10YR4/2	N/A	N/A	N/A	Loamy sand, mixed w/ 10YR4/3; few fine roots
17 - 25	Bw2	10YR4/3	N/A	N/A	N/A	Loamy sand, 10YR3/4 pore linings

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime

NO Reducing Conditions NO Gleyed or Low Chroma Colors NO Concretions

NO High Organic Content in Surface Layer in Sandy Solls

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric soil field indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	es (No)
Wetland Hydrology Present?	Yes (No)		
Hydric Soils Present?	Yes No		
D			

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Marc Wojtczak, Neil Molstad Investigators:

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake State: Indiana

Plot ID: 20

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

Yes) Yes

No No (No Yes

Community ID: Wetland

Transect ID: Area 3c

Field Location: Data Point 20

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Lythrum salicaria	Forb	OBL.	Salix nigra	Tree	OBL
Loosestrife,Purple	1	ļ	Willow,Black		
Typha angustifolia	Forb	OBL	Vitis riparia	Vine	FACW-
Narrow-leaved Cattail	<u> </u>		Grape,River-Bank		
	-				
	_				
Percent of Dominant Species that are OBI	L, FACW o	r FAC:	FAC Neutral: 4/4 = 100.00%		<u> </u>

(excluding FAC-)

4/4 = 100.00%

Remarks:

All of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

Wetland Hydrology Indicators

Primary Indicators

NO Inundated

YES Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

NO Drainage Patterns in Wetlands

Secondary Indicators

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

YES FAC-Neutral Test

Depth to Saturated Soil: = 12 (in.)NO Other(Explain in Remarks)

N/A (in.)

N/A (in.)

Remarks:

The presence of primary (saturation within the upper 12 inches of soil) and secondary (positive FAC-neutral Test) wetland hydrology indicators satisfies the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project Project No: 01210.w21 Date: 14-Jan-2002
Applicant/Owner: City of Gary (DOEA) County: Lake
Investigators: Marc Wojtczak, Neil Molstad State: Indiana
Plot ID: 20

SOILS

Map Unit Name (Series and Phase): Adrian Muck, Taxadjunct
Map Symbol: 777t Drainage Class: Very poorly drained Mapped Hydric Inclusion?

Taxonomy (Subgroup): Terric Haplosaprists
Profile Description

Field Observations Confirm Mapped Type? Yes (No)

Lioine De	Scribtion					
Depth		Matrix Color	Mottle Color	Mottle		
(inches)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundanc	e/Contrast	Texture, Concretions, Structure, etc
0 - 23	Α	N2.5/	N/A	N/A	N/A	Loam, mucky
23 - 28	Bg	2.5Y5/2	10YR4/6	Common	Prominent	Sand

Hydric Soil Indicators:

 YES Histosol
 NO Concretions

 NO Histic Epipedon
 NO High Organic Content in Surface Layer in Sandy Soils

 NO Sulfidic Odor
 NO Organic Streaking in Sandy Soils

 NO Aquic Moisture Regime
 YES Listed on Local Hydric Soils List

 NO Reducing Conditions
 YES Listed on National Hydric Soils List

 YES Gleyed or Low Chroma Colors
 NO Other (Explain in Remarks)

Remarks:

This soil profile exhibits hydric soil field indicator F1, Loamy Mucky Mineral, and satisfies the soils criterion.

WETLAND DETERMINATION

D			
Hydric Soils Present?	(Yes) No		
Wetland Hydrology Present?	(Yes) No		
Hydrophytic Vegetation Present?	Yes No	Is the Sampling Point within the Wetland?	(Yes) No

Remarks

This location satisfies all three criteria and qualifies as wetland.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

Date: 4-Sep-2003

Investigators:

Applicant/Owner: City of Gary (DOEA)

Marc Wojtczak, Louis Moran, Desiree Tazelaar

County: Lake State: Indiana

Plot ID: 23

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

Yes)

No Yes (No) (No) Yes

Community ID: Wetland

Transect ID: Area 3c

Field Location:

Data Point 23

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Sambucus canadensis	Shrub	FACW-	Eupatorium rugosum	Forb	UPL
Elder, American			White Snakeroot	-	
Eupatorium maculatum	Forb	OBL	Osmunda regalis spectabilis	Forb	OBL
Spotted Joe Pye Weed			Fern,Royal		:
Calamagrostis canadensis	Grass	OBL	Amphicarpaea bracteata	Vine	FACW*
Blue Joint Grass			Upland Hog Peanut		
Percent of Dominant Species that are OB	I FACW o	r EAC	FAC Neutral: 5/6 = 83.33%	l	<u> </u>

(excluding FAC-) Remarks:

Greater than 50% of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

5/6 = 83.**3**3%

NO Recorded Data(Describe in Remarks):

HYDROLOGY

N/A Stream, Lake or Tide Gauge **Primary Indicators** N/A Aerial Photographs NO Inundated YES Saturated in Upper 12 Inches N/A Other NO Water Marks YES No Recorded Data **NO Drift Lines** NO Sediment Deposits Field Observations NO Drainage Patterns in Wetlands Secondary Indicators Depth of Surface Water: N/A (in.) YES Oxidized Root Channels in Upper 12 Inches NO Water-Stained Leaves Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: = 10 (in.)

NO Local Soil Survey Data YES FAC-Neutral Test

Wetland Hydrology Indicators

NO Other(Explain in Remarks)

Remarks:

The presence of primary (soil saturation within upper 12 inches) and secondary (oxldized root channels, positive FAC-neutral test) wetland hydrology indicators satisfies the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site: J-

J-Pit Redevelopment Project

Project No: 01210.w21

4-Sep-2003

Applicant/Own Investigators:

Applicant/Owner: City of Gary (DOEA)

Marc Wojtczak, Louis Moran, Desiree Tazelaar

County: Lake State: Indiana Plot ID: 23

Date:

SOILS

Map Unit Name (Series and Phase):

ise): Gilford fine sandy loam

2.5Y3/1

Map Symbol: 201

Drainage Class: Very Poor

Mapped Hydric Inclusion?

fine roots

Loamy sand

Field Observations Confirm Mapped Type? Yes (No)

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		ottle ce/Contrast	Texture, Concretions, Structure, etc
0 - 5	A1	N2.5/	N/A	N/A	N/A	Sandy loam
5 - 10	A2	N2.5/	10YR3/3 10YR4/6	Few Few	Prominent Prominent	Sandy loam, oxidized root channels
10 - 24	ABa	2.5Y2.5/1	N/A	N/A	N/A	Sandy loam, 25% matrix color is 2.5Y5/2; few

Few

Hydric Soil Indicators:

NO Histosol

Cg

NO Histic Epipedon

YES Sulfidic Odor

Taxonomy (Subgroup): Typic Endoaquolls

YES Aquic Moisture Regime

NO Reducing Conditions

NO Concretions

Distinct

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

YES Listed on Local Hydric Soils List YES Listed on National Hydric Soils List

NO Other (Explain in Remarks)

YES Gleyed or Low Chroma Colors NO

2.5Y6/2

Remarks:

24 - 30

This profile exhibits hydric soil field indicator F1, loamy mucky mineral and F6, Redox Dark Surface, and satisfies the soils criterion.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland?	(Yes) No
Wetland Hydrology Present?	(Yes) No		
Hydric Soils Present?	(Yes) No		

Remarks

This location satisfies all three criteria and qualifies as wetland.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake

State: Indiana Plot ID: 8

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

Yes)

No Yes (No) Yes (No) Community ID: Upland Area 4a

Transect ID: Field Location:

Data Point 8

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Quercus velutina	Tree	UPL	Vitis riparia	Vine	FACW-
Black Oak	7		Grape,River-Bank		
Cornus racemosa	Shrub	FACW-	Prunus serotina	Tree	FACU
Gray Dogwood			Cherry,Black		
· · · · · · · · · · · · · · · · · · ·					
	-				
Percent of Dominant Species that are OBI	., FACW o	r FAC:	FAC Neutral: 2/4 = 50.00%	<u> </u>	1

(excluding FAC-)

2/4 = 50.00%

Remarks:

Only 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

Wetland Hydrology Indicators

Primary Indicators

NO inundated

NO Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

NO Drainage Patterns in Wetlands

Secondary Indicators

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

NO FAC-Neutral Test

Depth to Saturated Soil: = 40 (in.) NO Other(Explain in Remarks)

Remarks:

Saturated soil was observed at a depth of 40 inches. This depth is too great to satisfy the hydrology criterion.

N/A (in.)

N/A (in.)

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

14-Jan-2002

Applicant/Owner: City of Gary (DOEA)

County: Lake Indiana State:

Date:

Investigators:

Marc Wojtczak, Neil Molstad

Plot ID: 8

SOILS

Map Unit Name (Series and Phase): Morocco loamy fine sand

Mapped Hydric Inclusion?

Drainage Class: Somewhat poorly drained Map Symbol: 501

Field Observations Confirm Mapped Type? Yes (No.

Taxonomy (Subgroup): Aquic Udipsamments Profile Description

Floine De	SCHEROIT					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
(mones)	110112011	(MIGHS EN MICHS)	(INICIISEII INICISC)	Abuiluance	Commast	Texture, concretions, otructure, etc
0-9	Α	10YR3/2	N/A	N/A	N/A	Sandy loam
9 - 11	Bw1	10YR4/3	N/A	N/A	N/A	Loamy sand
		ļ				,
44 40	Dura	40)(D.5.10	40VD4/6		= : :	[C]
11 - 40	Bw2	10YR5/6	10YR4/6	Common	Faint	Sand
II i	i					

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Sulfidic Odor

NO Organic Streaking in Sandy Soils

NO Aquic Moisture Regime NO Reducing Conditions

NO Listed on Local Hydric Soils List NO Listed on National Hydric Soils List

NO Gleyed or Low Chroma Colors NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)
Wetland Hydrology Present?	Yes (No)		
Hydric Soils Present?	Yes (No)		

Remarks:

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake

State: Indiana Plot ID: 10

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

(Yes) Yes

No (No. Yes No

Community ID: Upland

Transect ID: Area 4a

Field Location: Data Point 10

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Helianthus divaricatus	Forb	UPL	Pteridium aquilinum	Herb	FACU
Woodland Sunflower			Fern,Bracken		
Quercus velutina	Tree	UPL	Carex pensylvanica	Sedge	UPL
Black Oak			Common Oak Sedge		
	-				
	-				
	_				
Percent of Dominant Species that are OB (excluding FAC-) 0/4 = 0.00%	L, FACW o	r FAC:	FAC Neutral: 0/4 = 0.00%		

Remarks:

None of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

-	NO Recorded Data(Describe in Ren	narks):	Wetland Hydrology Indicators	
	N/A Stream, Lake or Tide Gau	ge	Primary Indicators	۱
	N/A Aerial Photographs		NO inundated	
	<u>N/A</u> Other		NO Saturated in Upper 12 Inches	
1	VES No Recorded Date		NO Water Marks	1
ļ	YES No Recorded Data		NO Drift Lines	ļ
			NO Sediment Deposits	ŀ
1	Field Observations		NO Drainage Patterns in Wetlands	
			Secondary Indicators	1
Į	Depth of Surface Water:	N/A (in.)	NO Oxidized Root Channels in Upper 12 Inches	
	, , , , , , , , , , , , , , , , , , ,	NI/A // 1	NO Water-Stained Leaves	1
1	Depth to Free Water in Pit:	N/A (in.)	NO Local Soil Survey Data	
	Depth to Saturated Soil:	> 29 (in.)	NO FAC-Neutral Test	
l	Dopan to datalated doll.	20 (11.)	NO Other(Explain in Remarks)	- 1

Remarks:

Saturated soil was not observed to a depth of 29 inches. This depth is too great to satisfy the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

14-Jan-2002

Investigators:

Applicant/Owner: City of Gary (DOEA)

County: Lake

Date:

Indiana State:

Plot ID: 10

SOILS

Map Symbol: 741

Map Unit Name (Series and Phase): Oakville Fine Sand Drainage Class: Excessively drained

Mapped Hydric Inclusion?

Field Observations Confirm Mapped Type? Yes (No)

Taxonomy (Subgroup): Typic Udipsamments Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	,	ottle ce/Contrast	Texture, Concretions, Structure, etc
0-3	A	10YR3/2	N/A	N/A	N/A	Loamy sand
3 - 26	Bw	10YR6/4	10YR4/6	Few	Distinct	Sand
26 - 29	С	10YR7/4	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime

NO Reducing Conditions

NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

NO Gleyed or Low Chroma Colors

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)
Wetland Hydrology Present?	Yes No		
Hydric Soils Present?	Yes No		

Remarks:

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake

State: Indiana Plot ID: 12

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

(Yes) Yes

No No (No)

Community ID: Upland Transect ID:

Area 4a

Field Location:

Data Point 12

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Yes

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Rosa carolina	Shrub	FACU-	Panicum virgatum	Grass	FAC+
Rose,Carolina		1	Switchgr a ss		
Helianthus divaricatus	Forb	UPL	Quercus velutina	Tree	UPL.
Woodland Sunflower			Black Oak		
Ammophila breviligulata	Grass	UPL*	Carex pensylvanica	Sedge	UPL
Marram Grass			Common Oak Sedge		1
Andropogon gerardii	Grass	FAC-	Agropyron repens	Grass	FACU
Big Bluestem Grass	,		Quackgrass		
Schizachyrium scoparium	Grass	FACU-			
Bluestem, Little					
					<u> </u>
·					
		1		i	1

Percent of Dominant Species that are OBL, FACW or FAC: 1/9 = 11.11%

FAC Neutral:

0/7 = 0.00%

Remarks:

(excluding FAC-)

Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Re	marks):	Wetland Hydrology Indicators	۱
<u>N/A</u> Stream, Lake or Tide Gau	ıge	Primary Indicators	1
<u>N/A</u> Aerial Photographs		<u>NO</u> Inundated	
<u>N/A</u> Other		NO Saturated in Upper 12 Inches	۱
VES No Decorded Date		NO Water Marks	
YES No Recorded Data		NO Drift Lines	
		NO Sediment Deposits	ı
Field Observations		NO Drainage Patterns in Wetlands	
		Secondary Indicators	
Depth of Surface Water:	N/A (in.)	NO Oxidized Root Channels in Upper 12 Inches	۱
	NIA (C.)	NO Water-Stained Leaves	
Depth to Free Water in Pit:	N/A (in.)	NO Local Soil Survey Data	ı
Depth to Saturated Soil:	> 27 (in.)	NO FAC-Neutral Test	1
Depth to Saturated Son.	~ Zi (iii.)	NO Other(Explain in Remarks)	

Remarks:

Saturated soil was not observed to a depth of 27 inches. This depth is too great to satisfy the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

14-Jan-2002

Applicant/Owner: City of Gary (DOEA) Investigators:

Marc Wojtczak, Neil Molstad

County: Lake State: Indiana Plot ID: 12

Date:

SOILS

Map Unit Name (Series and Phase): Map Symbol: Br

Brems Loamy Sand

Mapped Hydric Inclusion?

Drainage Class: Moderately well drained Taxonomy (Subgroup): Aquic Udipsamments

Field Observations Confirm Mapped Type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		ttle e/Contrast	Texture, Concretions, Structure, etc
0 - 9	Α	10YR2/1	N/A	N/A	N/A	Sandy loam
9 - 11	Bw1	10YR4/6	N/A	N/A	N/A	Sand
11 - 17	Bw2	10YR5/4	N/A	N/A	N/A	Sand
17 - 27	BC	10YR6/2	N/A	N/A	, N/A	Sand

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime NO Reducing Conditions

NO Gleyed or Low Chroma Colors

NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List

NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the the soils criterion is not satisfied.

WETLAND DETERMINATION

Damadas			·
Hydric Soils Present?	Yes No		
Wetland Hydrology Present?	Yes No		
Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)

Remarks:

Project/Site: J-Pit Redevelopment Propertion Applicant/Owner: City of Gary (DOEA) nvestigators: Marc Wojtczak, Neil Mo			Co St	ate: 14-Jan-2002 ounty: Lake ate: Indiana ot ID: 13	2
Do Normal Circumstances exist on the s s the site significantly disturbed (Atypic s the area a potential Problem Area? (If needed, explain on the reverse side	cal Situation	:)?	Yes No Community ID: Upland Yes No Transect ID: Area 4a Yes No Data Point 13	1	- Adday
EGETATION (USFWS			Region, Chicago Region (S&W))		
Dominant Plant Species(Latin/Common)			or Plant Species(Latin/Common)		Indicato
Ambrosia trifida	Forb	FAC+	Solidago altissima	Forb	FACU
Giant Ragweed			Golden-Rod,Tall		ļ., ., .
Poa pratensis	Grass	FAC-	Glechoma hederacea	Forb	FACU
Bluegrass,Kentucky		İ	Creeping Charlie		
Fragaria virginiana	Forb	FAC-			1
Strawberry, Virginia					1
				····	
	- 			<u> </u>	+
					
					1
			***************************************		Į.
Percent of Dominant Species that are O	BL, FACW	or FAC:	FAC Neutral: 0/2 = 0.00%	,	
Percent of Dominant Species that are O (excluding FAC-) 1/5 = 20.00% Remarks:	DBL, FACW	or FAC:	FAC Neutral: 0/2 = 0.00%		
(excluding FAC-) $1/5 = 20.00\%$	·		·		
(excluding FAC-) 1/5 = 20.00% Remarks:	·		·		
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY	drophytic, so th	ne vegetatio	on criterion is not satisfied.		
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe In Rem	drophytic, so th	ne vegetatio	on criterion is not satisfied. Vetland Hydrology Indicators		
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe In Rem N/A Stream, Lake or Tide Gaus	drophytic, so th	ne vegetatio	on criterion is not satisfied. Vetland Hydrology Indicators Primary Indicators		
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gaug N/A Aerial Photographs	drophytic, so th	ne vegetatio	Vetland Hydrology Indicators Primary Indicators NO Inundated		
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe In Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other	drophytic, so th	ne vegetatio	vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Ind		
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gaug N/A Aerial Photographs	drophytic, so th	ne vegetatio	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Ind		
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe In Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other	drophytic, so th	ne vegetatio	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Ind NO Water Marks NO Drift Lines		
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe In Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other	drophytic, so th	ne vegetatio	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Ind NO Water Marks NO Drift Lines NO Sediment Deposits	ches	
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other YES No Recorded Data	drophytic, so th	ne vegetatio	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Ind NO Water Marks NO Drift Lines NO Sediment Deposits NO Drainage Patterns in Wei	ches	
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other YES No Recorded Data Field Observations	narks):	ne vegetation	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Ind NO Water Marks NO Drift Lines NO Sediment Deposits NO Drainage Patterns in Wet	ches	
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other YES No Recorded Data	drophytic, so th	ne vegetation	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Inc. NO Water Marks NO Drift Lines NO Sediment Deposits NO Drainage Patterns in Wet Secondary Indicators NO Oxidized Root Channels	ches	s
Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other YES No Recorded Data Field Observations Depth of Surface Water:	narks):	vegetation	Vetland Hydrology Indicators Primary Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Ind NO Water Marks NO Drift Lines NO Drainage Patterns in Weter Secondary Indicators NO Oxidized Root Channels NO Water-Stained Leaves	ches	s
(excluding FAC-) 1/5 = 20.00% Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other YES No Recorded Data Field Observations	narks): ge N/A (in.	vegetation	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Inc. NO Water Marks NO Drift Lines NO Sediment Deposits NO Drainage Patterns in Wet. Secondary Indicators NO Oxidized Root Channels NO Water-Stalned Leaves NO Local Soil Survey Data	ches	s
Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other YES No Recorded Data Field Observations Depth of Surface Water:	narks):	vegetation	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Inc. NO Water Marks NO Drift Lines NO Drainage Patterns in Wet Secondary Indicators NO Oxidized Root Channels NO Water-Stained Leaves NO Local Soil Survey Data NO FAC-Neutral Test	ches tlands in Upper 12 inche	s
Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gauge N/A Aerial Photographs N/A Other YES No Recorded Data Field Observations Depth of Surface Water: Depth to Free Water in Pit:	narks): ge N/A (in.	vegetation	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Inc. NO Water Marks NO Drift Lines NO Sediment Deposits NO Drainage Patterns in Wet. Secondary Indicators NO Oxidized Root Channels NO Water-Stalned Leaves NO Local Soil Survey Data	ches tlands in Upper 12 inche	s
Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other YES No Recorded Data Field Observations Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Remarks:	N/A (in N/A (in > 27 (in	vegetation	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Ind NO Water Marks NO Drift Lines NO Drainage Patterns in Wet Secondary Indicators NO Oxidized Root Channels NO Water-Stained Leaves NO Local Soil Survey Data NO FAC-Neutral Test NO Other(Explain in Remark	ches tlands in Upper 12 inche	s
Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gause N/A Aerial Photographs N/A Other YES No Recorded Data Field Observations Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil:	N/A (in. N/A (in. > 27 (in.	vegetation	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Ind NO Water Marks NO Drift Lines NO Drainage Patterns in Wet Secondary Indicators NO Oxidized Root Channels NO Water-Stained Leaves NO Local Soil Survey Data NO FAC-Neutral Test NO Other(Explain in Remark	ches tlands in Upper 12 inche	S
Remarks: Less than 50% of the dominant species are hyd HYDROLOGY NO Recorded Data(Describe in Rem N/A Stream, Lake or Tide Gaus N/A Aerial Photographs N/A Other YES No Recorded Data Field Observations Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Remarks:	N/A (in. N/A (in. > 27 (in.	vegetation	Vetland Hydrology Indicators Primary Indicators NO Inundated NO Saturated in Upper 12 Ind NO Water Marks NO Drift Lines NO Drainage Patterns in Wet Secondary Indicators NO Oxidized Root Channels NO Water-Stained Leaves NO Local Soil Survey Data NO FAC-Neutral Test NO Other(Explain in Remark	ches tlands in Upper 12 inche	s

(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project Project No: 01210.w21 Date: 14-Jan-2002 Applicant/Owner: City of Gary (DOEA) County: Lake State: Indiana

Marc Wojtczak, Neil Molstad State: Indiana Plot ID: 13

SOILS

Map Unit Name (Series and Phase): Made Land
Map Symbol: ML Drainage Class: unknown

Mapped Hydric Inclusion? none

Taxonomy (Subgroup): Orthents Field Observations Confirm Mapped Type? Yes No

Profile Description

Mottle Depth **Matrix Color Mottle Color** Horizon (Munsell Moist) Texture, Concretions, Structure, etc (inches) (Munsell Moist) Abundance/Contrast 0 - 10 10YR3/3 N/A Mixed Fill 10 - 27 10YR6/6 10R4/6 Faint Sand, mixed with 10YR3/2 & 10YR2/1 silty Few material

Hydric Soil Indicators:

NO Histosol NO Concretions

NO Histic Epipedon NO High Organic Content in Surface Layer in Sandy Soils

NO Sulfidic Odor
NO Organic Streaking in Sandy Soils
NO Aquic Moisture Regime
NO Listed on Local Hydric Soils List
NO Reducing Conditions
NO Listed on National Hydric Soils List

NO Gleyed or Low Chroma Colors NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Wetland Hydrology Present? Yes No Hydric Soils Present? Yes No	Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Ye s (No)
Hydric Soils Present? Yes No	Wetland Hydrology Present?	Yes (No)		
	Hydric Soils Present?	Yes No		

Remarks:

This location fails all three criteria and does not qualify as wetland.

(1987 COE Wetlands Delineation Manual)

Project/Site:

Investigators:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Marc Wojtczak, Louis Moran, Desiree Tazelaar

Project No: 01210.w21

3-Sep-2003 Date:

County: Lake

Indiana State: Plot ID: 15

Do Normal Circumstances exist on the site?

(If needed, explain on the reverse side)

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

Yes) Yes Yes

No (No (No) Community ID: Upland

Transect ID:

Area 4a

Field Location:

Data Point 15

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Salix interior	Shrub	OBL	Phragmites australis	Grass	FACW+
Sandbar Willow			Reed,Common		
Lespedeza capitata	Grass	FACU	Solidago canadensis	Forb	FACU
Bushclover,Round-Head	╗		Golden-Rod,Canada		
Equisetum hyemale	Forb	FACW-			
Horsetail,Rough					
	-				
	1				
			·		
			-		1
		İ			
		ì	·		
Percent of Dominant Species that are OB	LEACW	r EAC:	FAC Neutral: 3/5 = 60 00%		-A

Percent of Dominant Species that are OBL, FACW or FAC:

3/5 = 60.00%(excluding FAC-)

FAC Neutral:

= 60.00%

Remarks:

Greater than 50% of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks): N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth to Free Water in Pit:

Depth to Saturated Soil:

N/A Other

Field Observations

YES No Recorded Data

Wetland Hydrology Indicators

Primary Indicators

NO Inundated

NO Saturated in Upper 12 Inches

NO Water Marks

NO Drift Lines

NO Sediment Deposits

NO Drainage Patterns in Wetlands

Secondary Indicators

Depth of Surface Water: N/A (in.)

N/A (in.)

> 20 (in.)

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

YES FAC-Neutral Test

NO Other(Explain in Remarks)

Saturated soil was not observed to a depth of 20 inches. This depth is too great to satisfy the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

3-Sep-2003

Applicant/Owner: City of Gary (DOEA)

Date:

County: Lake

Investigators:

Marc Wojtczak, Louis Moran, Desiree Tazelaar

State: Indiana Plot ID: 15

SOILS

Map Unit Name (Series and Phase):

Taxonomy (Subgroup): Aquic Udipsamments

Morocco Loamy Fine Sand, Taxadjunct

Map Symbol: 501t

Profile Description

Drainage Class: Somewhat poorly drained

Mapped Hydric Inclusion?

Field Observations Confirm Mapped Type? Yes No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mo Abundanc	ttle e/Contrast	Texture, Concretions, Structure, etc
0-2	Α	10YR3/1	N/A	N/A	N/A	Sand, many fine roots
2 - 6	AC	10YR4/3	N/A	N/A	N/A	Loamy sand, few fine roots
6 - 20	C1	2.5Y5/2	N/A	N/A	N/A	Loamy sand, n2.5/ krotovena

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor NO Aquic Moisture Regime

NO Reducing Conditions

NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

NO Gleyed or Low Chroma Colors

WETLAND DETERMINATION

Remarks:			
Hydric Soils Present?	Yes (No)		
Wetland Hydrology Present?	Yes (No)		
Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland?	Yes (No)

This location fails the hydrology and soils criteria and does not qualify as wetland.

(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators: Marc Wojtczak, Neil Molstad Project No: 01210.w21

Date: 14-Jan-2002

County: Lake State: Indiana Plot ID: 16

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

(Yes) Yes

No (No) Yes $\overline{N_0}$ Community ID: Upland

Transect ID: Area 4a

Field Location: Data Point 16

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Populus deltoides	Tree	FAC+	Prunus serotina	Tree	FACU
Cotton-Wood,Eastern			Cherry,Black		
	_				
	<u> </u>				
	_				1
	-				
	+				
	-				1
				-	
	1				
				1	
Percent of Dominant Species that are OBL	., FACW o	r FAC:	FAC Neutral: 0/1 = 0.00%		

(excluding FAC-) 1/2 = 50.00%

Wetland Hydrology Indicators

NO Inundated

NO Water Marks

NO Drift Lines

Primary Indicators

Remarks:

Only 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

N/A Other

YES No Recorded Data

Field Observations

N/A (in.)

Depth to Free Water in Pit:

= 38 (in.)

N/A (in.)

NO Drainage Patterns in Wetlands

NO Saturated in Upper 12 Inches

Secondary Indicators

NO Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

NO Local Soil Survey Data

NO FAC-Neutral Test

NO Sediment Deposits

NO Other(Explain in Remarks)

Remarks:

Saturated soil was not observed to a depth of 38 inches. This depth is too great to satisfy the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

14-Jan-2002 Date:

County: Lake State: Indiana

Plot ID: 16

SOILS

Map Symbol: 501

Profile Description

Map Unit Name (Series and Phase): Morocco loamy fine sand

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Aquic Udipsamments

Mapped Hydric Inclusion?

Field Observations Confirm Mapped Type? Yes No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-7	Mixed Fill	5YR3/4	N/A	N/A	N/A	Sand, mixed with 10YR6/6 & 10YR5/2
7 - 28	Bw	10YR6/4	10YR4/6	Common	Distinct	Sand
28 - 38	BC	10YR7/3	10YR4/6	Few	Distinct	Sand

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime

NO Reducing Conditions NO Gleyed or Low Chroma Colors NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)	
Wetland Hydrology Present?	Yes (No)			
Hydric Soils Present?	Ye s No			

Remarks:

This location fails all three criteria and does not qualify as wetland.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake

Indiana State: Plot ID: 17

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

Yes)

No Yes (No Yes No

Community ID: Upland Transect ID:

Area 4a

Field Location:

Data Point 17

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Spartina pecfinata	Grass	FACW+	Schizachyrium scoparium	Grass	FACU-
Cordgrass,Prairie	1		Bluestem, Little		
Panicum virgatum	Grass	FAC+	Helianthus divaricatus	Forb	UPL
Switchgrass			Woodland Sunflower		
	4				
	-		V = 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1		
	-{				
Percent of Dominant Species that are OBI	. FACW o	r FAC:	FAC Neutral: 1/3 = 33.33%	!	<u> </u>

(excluding FAC-)

NO Recorded Data(Describe in Remarks):

2/4 = 50.00%

Remarks:

Only 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

N/A Stream, Lake or Tide Gau	ıge	Primary Indicators
N/A Aerial Photographs		NO Inundated
<u>N/A</u> Other		NO Saturated in Upper 12 Inches
YES No Recorded Data		NO Water Marks
1L3 No Recorded Data		NO Drift Lines
		NO Sediment Deposits
Field Observations		NO Drainage Patterns in Wetlands
		Secondary Indicators
Depth of Surface Water:	N/A (in.)	NO Oxidized Root Channels in Upper 12 Inches
D	K1/A (()	NO Water-Stained Leaves
Depth to Free Water in Pit:	N/A (in.)	NO Local Soil Survey Data

Wetland Hydrology Indicators

NO FAC-Neutral Test

NO Other(Explain in Remarks)

Remarks:

Saturated soil was not observed to a depth of 36 inches. This depth is too great to satisfy the hydrology criterion.

> 36 (in.)

Depth to Saturated Soil:

(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project
Applicant/Owner: City of Gary (DOEA)

Redevelopment Project Project No: 01210.w21

Date: 14-Jan-2002

County: Lake State: Indiana Plot ID: 17

SOILS

Map Unit Name (Series and Phase): Made Land

Marc Wojtczak, Neil Molstad

Map Symbol: ML Drainage Class: unknown

Mapped Hydric Inclusion? none

Taxonomy (Subgroup): Orthents

Field Observations Confirm Mapped Type? Yes No.

Profile Description

Investigators:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mo Abundanc	ttle e/Contrast	Texture, Concretions, Structure, etc
0-8	Α	10YR2/1	N/A	N/A	N/A	Sandy loam
8 - 21	Mixed Fill	10YR2/1	N/A	N/A	N/A	Loamy sand, mixed with 10YR5/1
21 - 33	C1	10YR5/1	N/A	N/A	N/A	Sand
33 - 36	, C2	10YR6/3	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime

NO Reducing Conditions
NO Gleyed or Low Chroma Colors

NO Concretions

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List

NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)
Wetland Hydrology Present?	Yes No		•
Hydric Soils Present?	Yes No		

Remarks:

This location fails all three criteria and does not qualify as wetland.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

14-Jan-2002 Date:

County: Lake

State: Indiana

Plot ID: 9

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

(Yes)

No Yes (No Yes No) Community ID: Wetland Transect ID:

Area 4b Field Location:

Data Point 9

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Helianthus grosseserratus	Forb	FACW-	Lythrum salicaria	Forb	OBL
Sunflower,Saw-Tooth	1		Loosestrife,Pu rpl e		İ
Typha angustifolia	Forb	OBL	Scirpus fluviatilis	Sedge	OBL
Narrow-leaved Cattail			Bulrush,River		
	-				
	_				
			, ,,,,,		
					
					1
Percent of Dominant Species that are OBL	FACW	r EAC:	FAC Neutral: 4/4 = 100.00%		

(excluding FAC-) 4/4 = 100.00%

Wetland Hydrology Indicators

NO Inundated

NO Water Marks

NO Drift Lines

Primary Indicators

Remarks:

All of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO Recorded Data(Describe in Remarks):

N/A Stream, Lake or Tide Gauge

N/A Aerial Photographs

Depth of Surface Water:

Depth to Saturated Soil:

Depth to Free Water in Pit:

N/A Other

YES No Recorded Data

Field Observations

N/A (in.)

N/A (in.)

= 10 (in.)

Secondary Indicators

YES Oxidized Root Channels in Upper 12 Inches

NO Water-Stained Leaves

YES Saturated in Upper 12 Inches

NO Drainage Patterns in Wetlands

NO Local Soil Survey Data

YES FAC-Neutral Test

NO Sediment Deposits

NO Other(Explain in Remarks)

Remarks:

Saturated soil was observed at a depth of 10 inches. This observation satisfies the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

Investigators:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

14-Jan-2002 Date:

County: Lake

State: Indiana

Plot ID: 9

SOILS

Map Symbol: 777t

Adrian Muck, Taxadjunct Map Unit Name (Series and Phase):

Drainage Class: Very poorly drained

Taxonomy (Subgroup): Terric Haplosaprists

Mapped Hydric Inclusion?

Field Observations Confirm Mapped Type? Yes

No

Profile Description									
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mot Abundance		Texture, Concretions, Structure, etc			
0 - 20	Α .	10YR2/1	N/A	N/A	N/A	Loam, mucky; oxidized root channels			
20 - 28	С	10YR5/2	10YR4/6	Common	Distinct	Sand			

Hydric Soil Indicators:

YES Histosol

NO Histic Epipedon

NO Sulfidic Odor

NO Aquic Moisture Regime

NO Reducing Conditions YES Gleyed or Low Chroma Colors **NO Concretions**

NOHigh Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils YES Listed on Local Hydric Soils List

YES Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

This soil profile exhibits hydric soil field indicator F1, Loamy Mucky Mineral, and satisfies the soils criterion.

WETLAND DETERMINATION

Dame des.			
Hydric Soils Present?	(Yes) No		
Wetland Hydrology Present?	(Yes) No		
Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland?	(Yes) No

This location satisfies all three criteria and qualifies as wetland.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Investigators:

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake

State: Indiana Plot ID: 11

Do Normal Circumstances exist on the site?

Is the site significantly disturbed (Atypical Situation:)?

Is the area a potential Problem Area?

(If needed, explain on the reverse side)

(Yes) Yes

(Yes)

No No) No

Community ID:

Wetland

Transect ID: Field Location:

Area 4b

Data Point 11

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Phalaris arundinacea	Grass	FACW+	Helianthus grosseserratus	Forb	FACW-
Reed Canary Grass			Sunflower,Saw-Tooth	1	
Lythrum salicaria	Forb	OBL	Calamagrostis canadensis	Grass	OBL
Loosestrife, Purple			Blue Joint Grass		
	_				
				 	
					1
	1				
Percent of Dominant Species that are OB	L, FACW o	r FAC:	FAC Neutral: 4/4 = 100.00%		

4/4 = 100.00% (excluding FAC-)

Remarks:

All of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

1	NO Recorded Data(Describe in Rem	arks):	Wetland Hydrology Indicators				
	N/A Stream, Lake or Tide Gaug	je	Primary Indicators				
	N/A Aerial Photographs		NO Inundated	-			
	<u>N/A</u> Other		NO Saturated in Upper 12 Inches	1			
	YES No Recorded Data		NO Water Marks				
ı	1E3 No Recorded Data		NO Drift Lines				
	-		NO Sediment Deposits				
	Field Observations	<u>YES</u> Drainage Patterns in Wetlands					
1			Secondary Indicators				
	Depth of Surface Water:	N/A (in.)	NO Oxidized Root Channels in Upper 12 Inches	1			
	D -0 / F - 14/ / D'	NI/A //)	NO Water-Stained Leaves				
	Depth to Free Water in Pit: N/A (in.)		NO Local Soil Survey Data				
-	Depth to Saturated Soil:	= 15 (in.)	YES FAC-Neutral Test	1			
1	Dopan to Catalated Con.	10 (111.)	NO Other(Explain in Remarks)				

Remarks:

The presence of primary (low landscape position/draingae patterns) and secondary (positive FAC-neutral Test) wetland hydrology indicators satisfies the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

Investigators:

J-Pit Redevelopment Project

Applicant/Owner: City of Gary (DOEA)

Marc Wojtczak, Neil Molstad

Project No: 01210.w21

Date: 14-Jan-2002

County: Lake

State: Indiana Plot ID: 11

SOILS

Map Unit Name (Series and Phase): Map Symbol: 513

Profile Description

Drainage Class: poorly drained

Granby Loamy Fine Sand

Mapped Hydric Inclusion? Marsh

Field Observations Confirm Mapped Type? Yes No.

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 8	Α	10YR2/1	N/A	N/A	N/A	Loam
8 - 27	Bg	10YR5/2	10YR4/1	Common	Prominent	Sand, 10YR2/1 organic stains

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

Taxonomy (Subgroup): Typic Haplaquolls

NO Sulfidic Odor

YES Aquic Moisture Regime

NO Reducing Conditions YES Gleyed or Low Chroma Colors **NO Concretions**

NO High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

YES Listed on Local Hydric Soils List YES Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

Although no hydric soil field indicators were observed at this location, this profile satisfies the soils criterion. A complete explanation is provided at the bottom of this dataform.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Is the Sampling Point within the Wetland? No No (Yes) Wetland Hydrology Present? No (Yes) Hydric Soils Present? (Yes No

Remarks:

This location satisfies all three criteria and qualifies as wetland.

Explanation for response to: Normal Circumstances? Atypical Situation? Potential Problem Area?

Although no hydric soil field indicators were observed at this location, the soil profile is classified taxonomically as poorly drained. Additional evidence such as the depressional landscape position of the location and saturated conditions close to the upper portion of the profile suggest saturated conditions exist at the location for significant portions of the growing season, satisfying the soils criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

3-Sep-2003

Applicant/Owner: City of Gary (DOEA) Investigators:

Marc Wojtczak, Louis Moran, Desiree Tazelaar

County: Lake State: Indiana Plot ID: 14

Do Normal Circumstances exist on the site?

(If needed, explain on the reverse side)

Is the site significantly disturbed (Atypical Situation:)?

is the area a potential Problem Area?

(Yes) No No Yes \overline{No} Yes

Community ID: Wetland, Borrow pit

Area 4c

Date:

Transect ID: Field Location:

Data Point 14

VEGETATION

(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicato
Phragmites australis	Grass	FACW+	Equisetum hyemale	Forb	FACW-
Reed,Common	7		Horsetail,Rough		
Cyperus filiculmis	Sedge	FACU-	Salix discolor	Shrub	FACW
Flatsedge,Slender			Willow,Pussy		
Lythrum salicaria	Forb	OBL	Agalinis purpurea	Forb	FACW
Loosestrife,Purple			False-Foxglove,Large Purple		
			·		
	-			ì	1

Remarks:

Greater than 50% of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO Recorded Data(Describe in Ren	narks):	Wetland Hydrology Indicators				
N/A Stream, Lake or Tide Gau	ge	Primary Indicators				
N/A Aerial Photographs		NO Inundated				
<u>N/A</u> Other		YES Saturated in Upper 12 Inches				
YES No Recorded Data		NO Water Marks	l			
1ES NO RECOIDED DATA		NO Drift Lines				
		NO Sediment Deposits	i			
Field Observations		NO Drainage Patterns in Wetlands				
		Secondary Indicators				
Depth of Surface Water:	N/A (in.)	YES Oxidized Root Channels in Upper 12 Inches				
B 41 4 E 144 4 1 B4	NIA Car	NO Water-Stained Leaves	l			
Depth to Free Water in Pit: N/A (in.)		NO Local Soil Survey Data				
Depth to Saturated Soil:	= 5 (in.)	YES FAC-Neutral Test				
Dopin to catalated doll.	·· • (m.)	NO Other(Explain in Remarks)				

Remarks:

The presence of primary (saturation within upper 12 inches of soil) and secondary (oxidized root channels, positive FAC-neutral Test) wetland hydrology indicators satisfies the hydrology criterion.

(1987 COE Wetlands Delineation Manual)

Project/Site:

J-Pit Redevelopment Project

Project No: 01210.w21

3-Sep-2003

Investigators:

Applicant/Owner: City of Gary (DOEA)

Marc Wojtczak, Louis Moran, Desiree Tazelaar

County: Lake State: Indiana

Plot ID: 14

Date:

SOILS

Map Symbol: MLA

Profile Description

Taxonomy (Subgroup): Aquents

Map Unit Name (Series and Phase): Made Land, Aquents

Drainage Class: Unknown

Mapped Hydric Inclusion?

Field Observations Confirm Mapped Type? Yes No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	•	ttie e/Contrast	Texture, Concretions, Structure, etc
0 - 2	Α	2.5Y2.5/1	7.5YR3/3 7.5YR3/4	Few	Prominent Prominent	Loamy sand, many fine roots
2 - 4	ACg	10YR3/1	10YR3/6	Few Few		Loamy sand, mixed w/ 2.5Y4/1 & 6/2; straified w/ large roots
4 - 11	Cg1	2.5Y4/1	10YR4/6	Few	Prominent	Loamy sand, oxidized root channels
11 - 20	Cg2	2.5Y5/1	10YR4/6	Few	Prominent	Loamy sand, mixed w/ 2.5Y5/2
20 - 28	Cg3	5Y4/1	10YR4/6 2.5Y5/4	Common Few	Prominent Prominent	Loamy sand

Hydric Soil Indicators:

NO Histosol

NO Histic Epipedon

NO Sulfidic Odor

YES Aquic Moisture Regime YES Reducing Conditions

YES Gleyed or Low Chroma Colors

NO Concretions

YES High Organic Content in Surface Layer in Sandy Soils

NO Organic Streaking in Sandy Soils

NO Listed on Local Hydric Soils List NO Listed on National Hydric Soils List

NO Other (Explain in Remarks)

Remarks:

This soil exhbits hydric soil field indicator F1, Loamy Mucky Mineral and F6, Redox Dark Surface, and satisfies the soils criterion.

WETLAND DETERMINATION

	Hydrophytic Vegetation Present?	(Yes)	No	Is the Sampling Point within the Wetland?	(Yes)	No
	Wetland Hydrology Present?	(Yes)	No		$\overline{}$	
	Hydric Soils Present?	(Yes)	No			
- 1						

Remarks:

This location satisfies all three criteria and qualifies as wetland.

APPENDIX II:

DELINEATION METHODS AND SITE ANALYSIS

Wetland Delineation Methods

The site was field-inspected and plant species lists were recorded to document the vegetation types present. Wetland indicator categories are assigned to each plant species based on a regional list published by the U.S. Fish and Wildlife Service in 1988. The categories are based on the estimated probability that a species would be naturally encountered in a wetland. Under the Corps of Engineers Wetlands Delineation Manual (1987), if more than 50% of the dominant plant species in a given area are in the categories FAC (excluding FAC-), FACW, or OBL, then the area is considered to be dominated by hydrophytic vegetation and representative of a wetland plant community.

Plant Indicator Status Categories								
Indicator Category	Indicator Symbol	Definition						
Obligate Wetland Plants	OBL	Plants that occur almost always (estimated probability greater than 99%) in wetlands under natural conditions, but which may also occur rarely in non-wetlands.						
Facultative Wetland Plants	FACW	Plants that usually occur in wetlands (estimated probability 67% to 99%), but occasionally are found in non-wetlands.						
Facultative Plants	FAC	Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands.						
Facultative Upland Plants	FACU	Plants that usually occur in non-wetlands (estimated probability 67% to 99%) but occasionally are found in wetlands.						
Obligate Upland Plants	UPL	Plants that occur almost always (estimated probability greater than 99%) in non-wetlands under natural conditions, but which may also occur rarely in wetlands.						

In addition to hydrophytic dominance, each suspected wetland must also exhibit wetland hydrology and hydric soil characteristics. The hydrology and soils are described in the field based on samples obtained using a hand soil probe.

As defined in the Federal Register (Federal Register, Volume 59: July 13, 1994), "A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part." According to the National

Technical Committee for Hydric Soils (NTCHS), documentation of the presence or absence of a hydric soil can only be determined through on-site investigation, not strictly by its classification. Consequently, the presence of a soil on a hydric soil list does not mean that the soil is hydric. Soils are identified as hydric if they possess certain field indicators, as defined in the *Field Indicators of Hydric Soils in the United States* (USDA, NRCS, Version 4.0, March 1998). However, some hydric soils lack the currently listed hydric indicators.

The absence of an indicator in a soil does not exclude that soil from being classified as hydric. Soil series, soil color, the presence of mottling or gleying, and depth to water table are determined and recorded in the field. These features, when present, may indicate a hydric soil when hydric soil field indicators are absent. To properly use hydric soil field indicators, a basic knowledge of soil landscape relationships and soil survey procedures is necessary. Soils reported herein are classified in accordance with *Soil Taxonomy*, Agriculture Handbook AH-436, U.S. Department of Agriculture.

Determinations of hydrology are based on observations of inundation, soil saturation in the soil core, permanent watermarks, and other recognized wetland hydrology indicators.

Floristic Quality Assessment

Plant communities of the site were evaluated with the Floristic Quality Assessment (FQA) methodology, a widely used technique used for rapid assessment of the floristic quality in a defined area or plant community. In using FQA, the presence of each plant species is recorded, generating a species inventory. This inventory is entered into computer software that was used to generate the species lists used in this report. Floristic quality calculations are also generated that provides a compilation of various floristic quality data, resulting in a determination of the floristic quality of the subject area.

The floristic quality data for an area partially indicates its quality as a natural area (i.e., relative to pre-settlement or disturbance). One indicator of the degree of disturbance and vegetative quality at an area is the calculated Native Floristic Quality Index (Native FQI). A high Native FQI value indicates a high-quality natural area, but how high the Native FQI must be for an area to be of high quality is a subjective determination. In general, a wetland (or other defined area) with a Native FQI greater than 20.00 from a single observation may be considered a moderately high quality plant community. These areas have a high potential for containing more conservative or high-quality plant species. Therefore, adverse impacts to wetlands and subsequent proposals for compensatory mitigation may be scrutinized carefully by the regulatory agencies.

A high number of native species with high coefficients of conservatism, C (a subjective measure of quality based on relative tolerance to disturbance; weedy species are highly disturbance tolerant, and are lower ranked), will result in a high Native FQI. The C value is based on the relative rarity of a species and/or the resiliency of a species following disturbance. Coefficients of conservatism for native plant species range from 0 for ubiquitous, weedy species to 10 for rare, highly conservative species. Adventive species are not assigned a C value for the calculations. Adventive species are exotic or non-native species that have entered the Chicago region since European settlement. These species generally do not lend themselves to increased floristic quality, but instead appear after a disturbance. Thus, a high proportion of these species in a given area or community may be an indication of a lower quality plant community.

The Native FQI essentially is equivalent to the calculated Native Index (NI) or Natural Areas Rating Index (NARI) from earlier versions of the FQA method (known as the Open Lands Assessment method, or more simply as the Wilhelm Index). The current FQA is a revision of the original technique described in the *Plants of the Chicago Region* (Swink and Wilhelm, 1979). Technical names in the FQA and this report follow the nomenclature of *Plants of the Chicago Region* (Swink and Wilhelm, 1994).

The wetness coefficient (W, ranging from -5 to +5) refers to the corresponding wetland indicator status (e.g., OBL = obligate wetland species, -5; FAC = facultative species, 0; UPL = upland species, +5) for U.S. Fish and Wildlife Service Region 3 (Illinois, Michigan, Indiana, Missouri, Iowa, Wisconsin, and Minnesota). A wetland indicator status noted in brackets (e.g., [FACW]) is a modification of the Region 3 indicator status to apply locally in the 22-county Chicago region covered by Plants of the Chicago Region. The Wetness coefficient is useful in evaluating the general "wetness" affinity of a sampled plant community. If the average indicator status among all species present is in the FAC, FACW, or OBL classes, then the plant community may be considered hydrophytic.

Table 2. All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

	STIC QUALITY DATA	Native		260	80.0		Adventive	65	20.0%
	NATIVE SPECIES	Tree		19	5.8		Tree	8	2.5%
325	Total Species	Shrub		26	8.(Shrub	6	1.8%
	NATIVE MEAN C	W-Vine		5	1.5		W-Vine	1	0.3%
3.7	W/Adventives	H-Vine		3	0.9		H-Vine	0	0.0%
	NATIVE FQI	P-Forb		139	42.8		P-Forb	17	5.2%
65.8	W/Adventives	B-Forb		10	3.3		B-Forb	15	4.6%
	NATIVE MEAN W	A-Forb		13	4.(A-Forb	8	2.5%
0.8	W/Adventives	P-Grass		17	5.2		P-Grass	6	1.8%
AVG:	Facultative	A-Grass		3	0.5		A-Grass	4	1.2%
		P-Sedge		16	4 . 9	_	P-Sedge	0	0.0%
		A-Sedge		1	0.0		A-Sedge	0	0.0%
		Cryptoga	III	8	2.	০ ব			
ACRONYM	C SCIENTIFIC NAME		W	WETNESS	PH	ZSTOGNOM	Y COMMON N	JAME	
ACENEG	0 Acer negundo	***************************************		FACW-		Tree	BOX ELDI		
ACERUB	7 Acer rubrum			FAC		Tree	RED MAPI		
ACESAI	0 Acer saccharinum			FACW		Tree	SILVER N		
ACESAU	3 Acer saccharum			FACU		Tree	SUGAR MA		
ACHMIL	O ACHILLEA MILLEFOLIU	ЛM		FACU		P-Forb	YARROW		
AGAPUU	6 Agalinis purpurea			FACW		A-Forb		FALSE FO	XGLOVE
AGRGRY	2 Agrimonia gryposepa	ala		FACU+		P-Forb	TALL AGE		
AGRPAR	7 Agrimonia parviflo			FAC+		P-Forb	SWAMP AC		
AGRPUB	5 Agrimonia pubescens			UPL		P-Forb	SOFT AGE	RIMONY	
AGRREP	0 AGROPYRON REPENS		3	FACU	Ad	P-Grass			
AGRALA	0 AGROSTIS ALBA		-3	FACW	Ad	P-Grass	REDTOP	_	
AILALT	0 AILANTHUS ALTISSIM	Ā	5	UPL	Ad	Tree	TREE OF	HEAVEN	
ALISUB	4 Alisma subcordatum		-5	OBL	Νt	P-Forb	COMMON V	WATER PL	ANTAIN
ALLPET	O ALLIARIA PETIOLATA		0	FAC	Ad	B-Forb	GARLIC N	MUSTARD	
\mathtt{ALLTRT}	7 Allium tricoccum		3	FACU	Nt	P-Forb	WILD LEI	3K	
AMBARE	0 Ambrosia a. elatio	:	3	FACU	Nt	A-Forb	COMMON I	RAGWEED	
AMBTRI	0 Ambrosia trifida		-1	FAC+	Νt	A-Forb	GIANT RA	AGWEED	
AMEARB	8 Amelanchier arbores		3	FACU	Νt	Tree	SERVICE	BERRY	
AMMBRE	7 Ammophila brevilig		5	\mathtt{UPL}	Νţ	P-Grass	MARRAM (GRASS	
AMPBRB	4 Amphicarpaea bracte			FAC		P-Forb		HOG PEAN	
ANDGER	5 Andropogon gerardi:			FAC-		P-Grass		ESTEM GR	
ANDSCO	5 Andropogon scopari	ıs		FACU-		P-Grass		BLUESTEM	GRASS
ANECYL	6 Anemone cylindrica	4 _		UPL		P-Forb	THIMBLE		
ANEQUI ANETHA	7 Anemone quinquefol: 7 Anemonella thalict:			[UPL] UPL		P-Forb	WOOD AND		
ANTNEG	4 Antennaria neglect			UPL		P-Forb P-Forb	RUE ANEI		
ANTPLA	3 Antennaria plantag			UPL		P-Forb	CAT'S FO		
APIAME	7 Apios americana			FACW		P-Forb	GROUND		
APOAND	5 Apocynum androsaem	ifolium		UPL		P-Forb		NG DOGBA	NE
APOCAN	4 Apocynum cannabinu		ō	FAC		P-Forb	INDIAN		
APOSIB	2 Apocynum sibiricum	•	-1	FAC+		P-Forb		INDIAN	HEMP
AQUCAN	6 Aquilegia canadens	is	1	FAC-	Nt	P-Forb	WILD CO		
ARALYR	5 Arabis lyrata		4	FACU-	Nt	B~Forb	SAND CR	ESS	
ARANUD	8 Aralia nudicaulis		3	FACU	Νt	Shrub	WILD SA	RSAPARIL	LA
ARCMIN	0 ARCTIUM MINUS			UPL	Ad	B-Forb	COMMON	BURDOCK	
ARTCAU	5 Artemisia caudata			UPL		B-Forb	BEACH W	ORMWOOD	
ASCSYR	0 Asclepias syriaca			ÜPL		P-Forb		MILKWEEL)
ASPOFF	0 ASPARAGUS OFFICINA	LIS		FACU		P-Forb	ASPARAG		
ASTDUM	5 Aster dumosus			FAC+		P-Forb		TTON ASI	ER
ASTERI	5 Aster ericoides			FACU-		P-Forb	HEATH A		
ASTLAE	9 Aster laevis			UPL		P-Forb		BLUE AST	
ASTLAT	4 Aster lateriflorus			FACW-		P-Forb		OWERING	
ASTNOV ASTPIL	4 Aster novae-anglia 0 Aster pilosus	e		FACW		P-Forb		LAND AST	ER
ASTPIL	-			FACU+		P-Forb	HAIRY A		
ASTSAS	9 Aster praealtus 5 Aster sagittifoliu	a		[OBL] UPL		P-Forb P-Forb	WILLOW		מסתי
ASTSIS	3 Aster simplex			OBL		P-Forb		EAVED AS	TEK
ASTUMB	9 Aster umbellatus			FACW		P-Forb		D ASTER P ASTER	
AURFLA	9 Aureolaria flava			UPL		P-Forb		FALSE FO	YCI.OVE
BARVUL	0 BARBAREA VULGARIS			FAC		B-Forb	YELLOW		7272TI() A E
BOECYC	2 Boehmeria cylindri	ca		OBL		P-Forb			
BOTVIR	6 Botrychium virgini			FACU		yptogam		NAKE FER	SИ
BROJAP	0 BROMUS JAPONICUS	= =		FACU		A-Grass		E CHESS	
BROTEC	0 BROMUS TECTORUM			UPL		A-Grass			

Table 2 (cont.). All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

CALATPA Calthamparostis canadensis 5 ORL N. PGrass BLUE JOINT GRASS	ACRONYM	C SC	CIENTIFIC NAME	W	WETNESS	PH	YSIOGNOMY	COMMON NAME
CAMPRIA 8 Campanula aparinoides	CALCAN	3 Ca	alamagrostis canadensis	- 5	OBL	Nt	P-Grass	BLUE JOINT GRASS
CARPEN	CALTPA	5 Ca	altha palustris	-5	OBL	Nt	P-Forb	MARSH MARIGOLD
CARPEN	CAMAPA	8 Ca	ampanula aparinoides	-5	OBL	Nt	P-Forb	MARSH BELLFLOWER
CXATED S. Carex Atherodes -5 OBL NP -9-Sedge HAINY-LEAKES SENGE CXHAVO 6 Carex lacustris -5 OBL NP -9-Sedge COMPAND CARE SENGE CXECUT S. Carex mulmienbergii 5 UPL NP -9-Sedge CXECUT S. Carex mulmienbergii 5 UPL NP -9-Sedge CXECUT S. Carex pellita S. UPL NP -9-Sedge SCAD-LEAWED MOCILY SEDGE CXECUT CAREX STRICTAGE S. UPL NP -9-Sedge SCAD-LEAWED MOCILY SEDGE CXECUT CAREX STRICTAGE S. UPL NP -9-Sedge CXECUT S. Carex strictage S. OBL NP -9-SEDGE CXECUT S. CAREX STRICTAGE	CARPEN			-4	FACW+			
CXMACU								
CXARCU 6 Carex lacustris 5 OBL Nt P-Sedge COMMON LAKE SEDGE							_	
CXMPMIL 5 Carex muhlenbergii 5 UPL Mt P-Sedge SAND BERGTED SEDGE CXPELL 4 Carex pensylvanica 5 UPL Nt P-Sedge COMMON COMMON CASCOP CARCAL_SAVED WOOLLY SEDGE COMMON CASCOP CARCAL_SAVED WOOLLY SEDGE COMMON CASCOP COMMON TUSSOES COMMON TUSSOES<		6 Ca	arex lacustris	_			-	
CXPELL 4 Carex pellita -5 OBL Nt P-Sedge SROAD-LEAVED WOOLTY SEDSE CXSCOF 7 Carex scoparia -3 FACW Nt P-Sedge CAMONO AS ESEDE CXSICC 10 Carex siccata -5 OBL Nt P-Sedge LANCE-FRUITED CVAL SEDGE CXSTERI 5 Carex stricta -5 OBL Nt P-Sedge LANCE-FRUITED CVAL SEDGE CXSTERI 5 Carex stricta -5 OBL Nt P-Sedge CAMONT CVALUE COMMON TUSSOCK SEDGE CXVILDE 2 Carex vilpinoidea -5 OBL Nt P-Sedge COMMON TUSSOCK SEDGE CATABRA SPECIOSA 3 FACU Ad Tree RARCY CATALPA CELOCC 3 Caltis occidentalis 1 FAC- Nt Tree HARCY CATALPA CENAC C CEMPART MARCHANA SUPL Ad P-GOTA SAMDURITEDISH CERNAC C CERNAC C CERNAC SUPL Ad P-FOTA SAMDURITEDISH CICHAL O CICKORUM INTYSUS 5 UPL Ad P-FOTA SAMDURITEDISH CICHAL O CICKORUM INTYSUS 5 UPL AD P-FOTA AD P-FOTA CICHAL		5 Ca	arex muhlenbergii					
CXPENS 5 Carex ponsylvanica 5 JPL Nt P-Sedge COMMON OAK SEDGE CXSICC 10 Carex sicocata -5 OBL Nt P-Sedge CANCE-FRUITED OVAL SEDGE CXSTRI 5 Carex stricta -5 OBL Nt P-Sedge RUNNING SAVANNA SEDGE CXVULP 2 Carex vulpinoidea -5 OBL Nt P-Sedge ROWMON TUSSCOX SEDGE CRAMAE 6 Canothus americanus 5 UPL Ad Tree HACKBERTY CENNAC 0 Centralera MACULOSA 5 UPL Nt Natub Ad P-Forb AMERCEBERTY CERNOT 0 Centralium nutans 5 UPL Ad P-Forb Ad P-Forb AMERCEBERTY CICHARU 0 CICHARU MINTYBUS 5 UPL Ad P-Forb AD P-FORD AD P-FORD CIRNIUC 1 Circaea 1. canadensis 3 FACU Nt P-Forb COMMON WOOD RED CIRNUT 0 CIRTISTIS MIGHANIS 5 OBL Nt P-Forb MATTHER CIRNUT 0 CIRTISTIS MIGHANIS 5 ACU Nt P-Forb MATTHER CIRNUT 0 CIRTISTIS MIGHANIS 5 ACU Nt P-Forb MATTHER <		4 Ca	arex pellita					
CXSICCD 7 Carex scoparia -3 FACW Nt P-Sedge LANCE-FRUITED OVAL SEDGE CXSITRI 5 Carex stricta -5 OBL Nt P-Sedge LANCE-FRUITED OVAL SEDGE CXYULF 2 Carex vulpinoidea -5 OBL Nt P-Sedge COMMON TUSSOCK SEDGE CASTSFE 0 CATALPA SPECIOSA 3 PACU Ad Tree BROWN FOX SEDGE CELOCC 3 Celvis occidentalis 1 FAC- Nt Shrub Nt Shrub CENNAC 0 Centrul ologispinus 5 UPL Nt Shrub Nt World Brown For Sample CENNAC 0 CENTAURAB MACULOSA 5 UPL Ad 3-Forb SUTTONESS CERNAC 0 CHERCIONI MINTERS 5 UPL Ad 3-Forb SUTTONESS CERNAC 0 CHERCIONI MINTERS 5 UPL Ad 3-Forb SUTTONESS CINARU 1 Circaea I. canadensis 5 UPL Ad 3-Forb COMMON MOD RED CIRCINI 1 Circaea I. canadensis 3 PACU Nt 9-Forb COMMON MOD RED CIRCINI 1 Circiau miticum -5 OBL Nt 9-Forb PACW Nt 9-Forb PACW Nt 9-Forb		5 Ca	arex pensylvanica				_	
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CXYULP CATALPA SPECIOSA CA								
CXULLP 2 Carrax vulpinoidea 5 OBL Ad Tree CATSPE CATAPEA SPECIOSA 3 FACU AT THE CARLON CENACL CENACO Cenachrus americanus 5 UPL Nt Shrub Nt JERSEY TEA								
CEADOC 3 Celtis occidentalis 5 UPL Nt Shrub NeW JERGEY TEA CENCION 0 Cenchrus longispinus 5 UPL Nt A-Grass SANDEUR CENCION 0 Centrus longispinus 5 UPL Nt A-Grass SANDEUR CEPCOC 5 Cephalanthus occidentalis -5 OBL SANDEUR CEPCOC 5 Cephalanthus occidentalis -5 OBL Nt Shrub BUTTOMBUSH Nt A-FORD NODDING CHICKWEED 1 CERSUT 0 Cerastium nutans 1 FAC- Ad A-FORD NODDING CHICKWEED 1 CICINA 0 CICHENGENOITUM ALBUM 1 FAC- Ad A-FORD NODDING CHICKWEED 1 CICINAC 6 Cleuta maculata -5 OBL Nt P-FORD CHICKWEED 1 CICINAC 5 Cina arundinacea -3 FACW Nt P-FORD CHICKWEED 1 CICINAC 1 Circaea 1 canadensis 3 FACU Nt P-FORD CHICKWEED 1 CICINAC 1 Circaea 1 canadensis 3 FACU Nt P-FORD CHICKWEED 1 CICINAC 1 Circaea 1 canadensis 3 FACU Nt P-FORD CHICKWEED 1 CICINAC 1 Circaea 1 canadensis 3 FACU Nt P-FORD CHICKWEED 1 COMMUM 7 Commandar umbellata 3 FACU Nt P-FORD PASTURE THISTLE 1 COMMUM 7 Commandar umbellata 3 FACU Nt P-FORD PASTURE THISTLE 1 COMMUM 7 Commandar umbellata 3 FACU Nt P-FORD FALSE TOADPLAX COMMOM 7 COMMELIAN COMMUNIS 0 FAC Nt P-FORD SAND CHICKWEED 1 CONVOLVALIUS sepium 0 FAC Nt P-FORD SAND CHICKWEED 1 CONVOLVALIUS sepium 0 FAC Nt P-FORD SAND CHICKWEED 1 CONVOLVALIUS sepium 0 FAC Nt P-FORD SAND CHORDER 1 CONVOLVALIUS sepium 0 FAC Nt P-FORD SAND CHORDER 1 CONVOLVALIUS sepium 0 FAC Nt P-FORD SAND CHORDER 1 CONVOLVALIUS sepium 0 FAC Nt P-FORD SAND CHORDER 1 CONVOLVALIUS sepium 0 FAC Nt P-FORD SAND CHORDER 1 CORRECT 1 CONVOLVALIUS sepium 0 FAC Nt P-FORD SAND CHORDER 1 CONVOLVALIUS SEPIUM 1 P-FORD SAND CHORDER 1 CONVOLVALIUS SEPIUM 1 P-FORD SAND CHORDER 1 CONVOLVALIUS SEPIUM 1 P-FORD SAND CHORDER 1 CONVOLVALIUS SEPIUM 1 P-FORD SAND CHORDER 1 CONVOLVALIUS SEPIUM 1 P-FORD SAND CHORDER 1 CONVOLVALIUS SEPIUM 1 P-FORD SAND CHORDER 1 CONVOLVALIUS SEPIUM 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD SAND CHORDER 1 P-FORD S							_	
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CEPNOTC S Cephalanthus occidentalis -5 OBL Ne Shrub SUTTONBUSK CERNUT O Cerastium nutans 2 FACU+ Ne A-Forb No DDING CHICKWED CHEADED O CHENOFODIUM ALBUM 1 FAC- Ad A-Forb LAMB'S QUARTERS CICINAT O CICINGENUM INTYBUS 5 UPL Ad P-Forb LAMB'S QUARTERS CICINATO		0 (1	ENTAIREA MACITOSA					
CERNUT		5 C	enhalanthus occidentalis					
CHERALB O CHENOPODIUM ALBUM 1								
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CINANC								
CIRLUC 1 Circae 1. canadensis 3 FACU NT P-Forzb CINTENTE 'S NIGHTSHADE CIRDIS 2 Cirsium discolor 5 UPL NT B-FORD PASTURE THISTLE CIRMIT 10 Cirsium muticum -5 OBL NT B-FORD PASTURE THISTLE CIRWIT 10 CIRSIUM VULGARE 4 FACU- AB-FORD SWAMP THISTLE COMUMB 7 Comandra umbellata 3 FACU NT P-FORD FALSE TOADFLAX COMCOM 0 COMMELINA COMMUNIS 0 FAC AB-FORD BULL THISTLE COMUMB 7 Commendation of Commendation o								
CIRDIS 1 Circaea 1 Canadensis 3 FACU								
CIRDIS 2 Cirsium discolor 5 UPL Nt B-Forb PASTURE THISTLE CIRMUT 10 Cirsium muticuum -5 OBL Nt B-Forb BULL THISTLE CCRVUL 0 CIRSIUM VULGARE 4 FACU- Ad B-Forb BULL THISTLE CCMUMB 7 Comandra umbellata 3 FACU Nt P-Forb FALSE TOADFLAX COMCOM 0 COMMELINA COMMUNIS 0 FAC Ad A-Forb COMMON DAY FLOWER CONSEP 1 CONVOLVULUS sepium 0 FAC Nt P-Forb FALSE TOADFLAX CORTAN 5 Coreopsis salmata 3 FACU Nt P-Forb SAND COREOPSIS CORTAN 6 Coreopsis palmata 5 UPL Nt P-Forb PRAIRIE COREOPSIS CORTAN 6 Corrus racemosa -2 FACW- Nt P-Forb PRAIRIE COREOPSIS CORSTO 6 Cornus stolonifera -3 FACW Nt Shrub GRAY DOGWOOD CORSTO 6 Cornus stolonifera -4 FACU- Nt Shrub ARECONITURE GLOWOOD CYPEON 2 Cryptodaemia canadensis 0 FAC Nt P-Forb HONEWORT CUSGRO 4 Cuscuta gynonvii <td< td=""><td></td><td>1 0</td><td>irgaea l ganadangig</td><td></td><td></td><td></td><td></td><td></td></td<>		1 0	irgaea l ganadangig					
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Table 2 (cont.). All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

RUPRING 4 SUBLICTIUM PUGGENN	ACRONYM	C SCIENTIFIC NAME	W WETNESS	PHYSIOGNOMY	COMMON NAME
EUPLON PSSTUCA ELATION PFOCUS PLOWERING SPURCE PRAVIEA	EUPRUG	4 Eupatorium rugosum	5 UPL	Nt P-Forb	WHITE SNAKEROOT
PASSILA 0 PESTUCA BLATICE 2 PACU-	EUPSEM	O Eupatorium serotinum	-1 FAC+	Nt P-Forb	LATE BONESET
FRAVER 8 Fragaria vesca americana 5 UPL N. D. Forb HILLISIDE STRAMBERY FRAVER 1 Fragaria virginiana 1 FAC N. D. Forb FRAPES 1 Fragaria virginiana 1 FAC N. D. Forb GERN ASH GALIGN 7 Galium boreale 0 FAC N. D. Forb GALIGN 7 Galium boreale 0 FAC N. D. Forb GALIGN 7 Galium boreale 0 FAC N. D. Forb GALIGN 7 Galium boreale 0 FAC N. D. Forb GALIGN 7 Galium boreale 0 FAC N. D. Forb GALIGN 7 Galium boreale 0 FAC N. D. Forb MCRIMEN MCRIME	EUPCOR	2 Euphorbia corollata	5 UPL	Nt P-Forb	FLOWERING SPURGE
FRAVER 8 Fragaria vesca americana FAC No. P-Porb FRAVER 1 Fragaria virginiana 1 FAC No. P-Porb 1 Fragaria vir	FESELA	0 FESTUCA ELATIOR	2 FACU+	Ad P-Grass	TALL FESCUE
PRAPES	FRAVEA	8 Fragaria vesca americana	5 UPL	Nt P-Forb	HILLSIDE STRAWBERRY
FRAPES 1 Fraxinus p. Subintegerrina 0 FAC N. Tree GREEK ASH	FRAVIR			Nt P-Forb	
GALBAR 7 Galium boreale 0 FAC Nt A-FORD ANNUAL BEDSTRAW GALGHR 7 Galium toreale 0 FAC Nt P-FORD NORTHERN BEBSTRAW GALGHR 7 Galium co. hypomalacum 4 FACN- Nt P-FORD MILD MIDDER GALPHI 10 Galium bitusum 5 [UPL] Nt P-FORD MILD MIDDER GALPHI 10 Galium bitusum 5 [UPL] Nt P-FORD MILD MIDDER GALPHI 10 Galium pilosum 5 [UPL] Nt P-FORD MILD MIDDER GALPHI 10 Galium pilosum 5 [UPL] Nt P-FORD MILD MIDDER GALPHI 10 Galium pilosum 6 FAC Nt P-FORD MILD GRANHIM MILD MIDDER GEULAT 2 Geum 1. trichocarpum 3 FACN Nt P-FORD MILD GRANHIM MIL	FRAPES		0 FAC		
GALIGNE GALIUM Doceale O FAC	GALAPA				
GALCH	GALBOR				
GALDII Galium obtusum					
GABPIL 10 Galium pilosum					
GERMAC 4 Gerantum maculatum 5 [UDL] Nt P-Forb MILD GERANIUM GEULAT 1 Geum canadense 0 FAC Nt P-Forb MILD GERANIUM GEULAT 2 Geum 1. trichocarpum -3 FACN Nt P-Forb COMPANS GEULAT 2 Gleditsia triacanthos 0 FAC Nt Tree CHEERING CHERIE CHEERING CHEERING CHERIE CHEERING CHEERING CHERIE CHEERING CHEERING CHERIE CHEERING CHEERING CHEERING CHERIE CHEERING CHERIE					
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HACVIR 0 Hackella virginiana 1 FAC					
HAMVIR 8 Hamamelis virginiana 3 FACU N: Shrub MITCH HAZER, HELDIV 5 Helianthus divaricatus 5 UPL N: P-FOTD MOOLDHOUS MITCH MADE MITCH HAZER, MITCH M					
HELDIV				_	
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HESNAT		O HEMEDOCALLIE PUTSA	E IDI.		
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HOLOSTEUM UMBELLATUM		9 Houghers rightredenii	2 020		
HYPRIR 9 Hypoxis hirsuta 0 FAC		A HAT AGREEM IMPERTAGEM	I FAC-		
IMPCAP 3 Impatients capensis -3 FACW Nt A - Forb CRANGE JEWELWEED ITRIFIA 0 IRIS FLAYESCENS 5 UPL Ad P - Forb BLUE FLAG JUNACU 6 Juncus acuminatus -5 OBL Nt P - Forb SIGRT - HEADED RUSH JUNACU 6 Juncus brachycephalus -5 OBL Nt P - Forb SIGRT - HEADED RUSH JUNTEN J		9 Umovia birante	O DEPT		
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JUNTEN		9 Juncus prachycephalus			
JUNTOR 4 Juncus torreyi		4 Juncus dudleyi			
KOECRI 7 Koeleria cristata 5 UPL Nt P-Grass JUNE GRASS LACSER 0 LACTUCA SERRIOLA 0 FAC AN B-Forb PRICKLY LETTUCE LAMPUR 0 LAMIUM PURPUREUM 5 UPL AN B-FORD PURPLE DEAD NETTLE LEOCAR 0 LEONURUS CARDIACA 5 UPL AN B-FORD MOTHERMORT LEPCAM 0 LEPIDIUM CAMPESTRE 5 UPL AN B-FORD MOTHERMORT LEPCAM 0 LEPIDIUM CAMPESTRE 5 UPL AN B-FORD ROUND-HEADED BUSH CLOVER LESCAP 4 Lespedeza capitata 3 FACU Nt P-FORD ROUND-HEADED BUSH CLOVER LIAMSP 6 Liatris aspera 5 UPL Nt P-FORD ROUND-HEADED BUSH CLOVER LIAMSP 6 Liatris aspera 7 UPL Nt P-FORD ROUND-HEADED BUSH CLOVER LIAMSP 6 Liatris aspera 7 UPL Nt P-FORD ROUND-HEADED BUSH CLOVER LIAMSP 6 Liatris aspera 7 UPL Nt P-FORD ROUND-HEADED BUSH CLOVER LIAMSP 6 Liatris aspera 7 UPL Nt P-FORD ROUND-HEADED BUSH CLOVER LIAMSP 6 Liatris aspera 7 UPL Nt P-FORD ROUND-HEADED BUSH CLOVER LIAMSP 7 LIATRIS LILY LITCAN 8 Lithospermum canescens 7 UPL Nt P-FORD PRAIRIE LILY LITCAN 8 Lithospermum canescens 5 UPL Nt P-FORD HOARY PUCCOON LONMAA 0 LONICERA MAACKII 5 UPL AN Shrub AMUR HONEYSUCKLE LONTAT 0 LONICERA MAACKII 5 UPL AN SHRUB AMUR HONEYSUCKLE LUPPEO 7 Lupinus P. occidentalis 5 UPL Nt P-FORD WHITE CAMPION LUCAME 5 LYCOPUS americanus 75 UPL AN A-FORD WHITE CAMPION LUCAME 5 LYCOPUS americanus 75 UPL AN A-FORD WHITE CAMPION LUCAME 5 LYCOPUS americanus 75 UPL AN A-FORD WHITE CAMPION LUCAMI 7 Lycopus uniflorus 75 UPL AN A-FORD WHITE CAMPION LUCAME 5 LYCOPUS ALBA 5 UPL AN A-FORD WHITE CAMPION LUCAME 5 LYCOPUS ALBA 75 UPL AN A-FORD WHITE CAMPION MALOUS PUMILA 75 UPL AN A-FORD WHITE SWEET CLOVER MALOUR 0 MALUS PUMILA 5 UPL AN B-FORD WHITE SWEET CLOVER MALOUR 0 MALUS PUMILA 5 UPL AN B-FORD WHITE SWEET CLOVER MELALE 0 MELILOTUS ALBA 7 FACU AN B-FORD WHITE SWEET CLOVER MELALE 0 MELILOTUS ALBA 7 FACU AN B-FORD WHITE SWEET CLOVER MELALE 0 MELILOTUS ALBA 7 FACU AN B-FORD WHITE SWEET CLOVER MENARV 5 MenthA a. VILIOSA 7 FACU AN B-FORD WHITE SWEET CLOVER MENARV 5 MenthA a. VILIOSA 7 FACU AN B-FORD WHITE SWEET CLOVER MENARV 5 MenthA a. VILIOSA 7 FACU AN B-FORD WHITE MULBERRY MONFIS 4 MONARADA PIMINAS 7 FACU AN B-FOR					
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MAICAI 8 Maianthemum c. interius 5 [UPL] Nt P-Forb Maianthemum c. interius MALPUM 0 MALUS PUMILA 5 UPL Ad Tree APPLE APPLE COMMON MALLOW MALNEG 0 MALVA NEGLECTA 5 UPL Ad B-Forb COMMON MALLOW MELALB 0 MELILOTUS ALBA 3 FACU Ad B-Forb WHITE SWEET CLOVER MELACY 0 MELILOTUS OFFICINALIS 3 FACU Ad B-Forb YELLOW SWEET CLOVER MENARY 5 Mentha a. villosa -5 [OBL] Nt P-Forb WILD MINT MONFIS 4 Monarda fistulosa 3 FACU Nt P-Forb WILD BERGAMOT MONPUN 5 MONARDA 5 UPL Nt P-Forb HORSE MINT MORALB 0 MORUS ALBA 0 FAC Ad Tree WHITE MULBERRY NEPCAT 0 NEPETA CATARIA 1 FAC- Ad P-Forb CATNIP OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN		0 LYTHRUM SALICARIA	-5 OBL	Ad P-Forb	PURPLE LOOSESTRIFE
MALNEG 0 MALVA NEGLECTA 5 UPL Ad B-Forb COMMON MALLOW MELALB 0 MELILOTUS ALBA 3 FACU Ad B-Forb WHITE SWEET CLOVER MELLOF 0 MELILOTUS OFFICINALIS 3 FACU Ad B-Forb YELLOW SWEET CLOVER MENARV 5 Mentha a. villosa -5 [OBL] Nt P-Forb WILD MINT MONFIS 4 Monarda fistulosa 3 FACU Nt P-Forb WILD BERGAMOT MONPUN 5 Monarda punctata 5 UPL Nt P-Forb HORSE MINT MORALB 0 MORUS ALBA 0 FAC Ad Tree WHITE MULBERRY NEPCAT 0 NEPETA CATARIA 1 FAC- Ad P-Forb CATNIP OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN		8 Maianthemum c. interius	5 [UPL]	Nt P-Forb	Maianthemum c. interius
MELLOF 0 MELILOTUS OFFICINALIS 3 FACU Ad B-Forb YELLOW SWEET CLOVER MENARV 5 Mentha a. villosa -5 [OBL] Nt P-Forb WILD MINT MONFIS 4 Monarda fistulosa 3 FACU Nt P-Forb WILD BERGAMOT MONPUN 5 Monarda punctata 5 UPL Nt P-Forb HORSE MINT MORALB 0 MORUS ALBA 0 FAC Ad Tree WHITE MULBERRY NEPCAT 0 NEPETA CATARIA 1 FAC- Ad P-Forb CATNIP OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN			5 UPL	Ad Tree	APPLE
MELLOF 0 MELILOTUS OFFICINALIS 3 FACU Ad B-Forb YELLOW SWEET CLOVER MENARV 5 Mentha a. villosa -5 [OBL] Nt P-Forb WILD MINT MONFIS 4 Monarda fistulosa 3 FACU Nt P-Forb WILD BERGAMOT MONPUN 5 Monarda punctata 5 UPL Nt P-Forb HORSE MINT MORALB 0 MORUS ALBA 0 FAC Ad Tree WHITE MULBERRY NEPCAT 0 NEPETA CATARIA 1 FAC- Ad P-Forb CATNIP OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN			5 UPL	Ad B-Forb	COMMON MALLOW
MELLOF 0 MELILOTUS OFFICINALIS 3 FACU Ad B-Forb YELLOW SWEET CLOVER MENARV 5 Mentha a. villosa -5 [OBL] Nt P-Forb WILD MINT MONFIS 4 Monarda fistulosa 3 FACU Nt P-Forb WILD BERGAMOT MONPUN 5 Monarda punctata 5 UPL Nt P-Forb HORSE MINT MORALB 0 MORUS ALBA 0 FAC Ad Tree WHITE MULBERRY NEPCAT 0 NEPETA CATARIA 1 FAC- Ad P-Forb CATNIP OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN			3 FACU	Ad B-Forb	WHITE SWEET CLOVER
MONFIS 4 Monarda fistulosa 3 FACU Nt P-Forb WILD BERGAMOT MONPUN 5 Monarda punctata 5 UPL Nt P-Forb HORSE MINT MORALB 0 MORUS ALBA 0 FAC Ad Tree WHITE MULBERRY NEPCAT 0 NEPETA CATARIA 1 FAC- Ad P-Forb CATNIP OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN		0 MELILOTUS OFFICINALIS	3 FACU	Ad B-Forb	
MONFIS 4 Monarda fistulosa 3 FACU Nt P-Forb WILD BERGAMOT MONPUN 5 Monarda punctata 5 UPL Nt P-Forb HORSE MINT MORALB 0 MORUS ALBA 0 FAC Ad Tree WHITE MULBERRY NEPCAT 0 NEPETA CATARIA 1 FAC- Ad P-Forb CATNIP OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN		5 Mentha a. villosa	-5 [OBL]	Nt P-Forb	
MORALE 0 MORUS ALBA 0 FAC Ad Tree WHITE MULBERRY NEPCAT 0 NEPETA CATARIA 1 FAC- Ad P-Forb CATNIP OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN		4 Monarda fistulosa	3 FACU	Nt P-Forb	WILD BERGAMOT
MORALE 0 MORUS ALBA 0 FAC Ad Tree WHITE MULBERRY NEPCAT 0 NEPETA CATARIA 1 FAC- Ad P-Forb CATNIP OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN			5 UPL	Nt P-Forb	HORSE MINT
OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN		0 MORUS ALBA	0 FAC	Ad Tree	WHITE MULBERRY
OENBIE 0 Oenothera biennis 3 FACU Nt B-Forb COMMON EVENING PRIMROSE OENCLE 7 Oenothera clelandii 5 [UPL] Nt B-Forb SAND EVENING PRIMROSE ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN			1 FAC-	Ad P-Forb	CATNIP
ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN		0 Oenothera biennis	3 FACU	Nt B-Forb	COMMON EVENING PRIMROSE
ONOSEN 8 Onoclea sensibilis -3 FACW Cryptogam SENSITIVE FERN			5 [UPL]	Nt B-Forb	
OCNOTION OF A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		8 Onoclea sensibilis		Cryptogam	
	OSMCLO	3 Osmorhiza claytonii	4 FACU-	Nt P-Forb	HAIRY SWEET CICELY

Table 2 (cont.). All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
OSMCIN	7	Osmunda cinnamomea	-3	FACW	Cryptogam	CINNAMON FERN
OSMRES	8	Osmunda r. spectabilis	-5	OBL	Cryptogam	ROYAL FERN
OXAEUR		Oxalis europaea	3	FACU	Nt P-Forb	TALL WOOD SORREL
OXASTR		Oxalis stricta	5	UPL	Nt P-Forb	COMMON WOOD SORREL
OXYRIG		Oxypolis rigidior	-5	OBL	Nt P-Forb	COWBANE
PANCAP		Panicum capillare		FAC	Nt A-Grass	OLD WITCH GRASS
PANDII		Panicum dichotomiflorum		FACW-	Nt A-Grass	KNEE GRASS
PANLAT		Panicum latifolium		FACU	Nt P-Grass	BROAD-LEAVED PANIC GRASS
PANOLS		Panicum o. scribnerianum		[FACU]	Nt P-Grass	SCRIBNER'S PANIC GRASS
PANVIR		Panicum virgatum		FAC+	Nt P-Grass	SWITCH GRASS
PARINT	8	Parthenium integrifolium	5	UPL	Nt P-Forb	WILD QUININE
PARQUI		Parthenocissus quinquefolia	1	FAC-	Nt W-Vine	VIRGINIA CREEPER
PEDCAN		Pedicularis canadensis		FACU+	Nt P-Forb	WOOD BETONY
PEDLAN	9	Pedicularis lanceolata	-5	[OBL]	Nt P-Forb	FEN BETONY
PHAARU	0	PHALARIS ARUNDINACEA	~4	FACW+	Ad P-Grass	REED CANARY GRASS
PHLGLI	8	Phlox glaberrima interior	- 3	FACW	Nt P-Forb	MARSH PHLOX
PHLPIP	7	Phlox pilosa	1	FAC~	Nt P-Forb	SAND PRAIRIE PHLOX
PHRAUS	1	Phragmites australis	-4	FACW+	Nt P-Grass	COMMON REED
PHYVIV	6	Physostegia virginiana	-5	[OBL]	Nt P-Forb	OBEDIENT PLANT
PHYAME	1	Phytolacca americana	1	FAC-	Nt P-Forb	POKEWEED
PLALAN	0	PLANTAGO LANCEOLATA	0	FAC	Ad P-Forb	ENGLISH PLANTAIN
PLAMAJ	0	PLANTAGO MAJOR	-1	FAC+	Ad P-Forb	COMMON PLANTAIN
POAPRA	0	POA PRATENSIS	1	FAC-	Ad P-Grass	KENTUCKY BLUE GRASS
PODPEL	4	Podophyllum peltatum	3	FACU	Nt P-Forb	MAY APPLE
POLCAL	3	Polygonatum canaliculatum	3	FACU	Nt P-Forb	SMOOTH SOLOMON'S SEAL
POLAMS	4	Polygonum a. stipulaceum	-5	OBL	Nt P-Forb	WATER KNOTWEED
POLLAP	0	Polygonum lapathifolium	-4	FACW+	Nt A-Forb	HEARTSEASE
POLPUN	6	Polygonum punctatum	- 5	OBL	Nt A-Forb	SMARTWEED
POLSAG		Polygonum sagittatum		OBL	Nt A-Forb	ARROW~LEAVED TEAR-THUMB
POLSCN		Polygonum scandens		FAC	Nt H-Vine	CLIMBING FALSE BUCKWHEAT
POPALB		POPULUS ALBA		UPL	Ad Tree	WHITE POPLAR
POPDEL		Populus deltoides		FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE		Populus tremuloides		FAC	Nt Tree	QUAKING ASPEN
POTSIS		Potentilla simplex		FACU~	Nt P-Forb	COMMON CINQUEFOIL
PREALB		Prenanthes alba		FACU	Nt P-Forb	LION'S FOOT
PREALT		Prenanthes altissima		FACU	Nt P-Forb	TALL WHITE LETTUCE
PRUVUV		PRUNELLA VULGARIS		[UPL]	Ad P-Forb	LAWN PRUNELLA
PRUAME		Prunus americana		UPL	Nt Tree	WILD PLUM
PRUSER		Prunus serotina		FACU	Nt Tree	WILD BLACK CHERRY
PRUVIR		Prunus virginiana		[FACU]	Nt Shrub	CHOKE CHERRY
PTEAQL PYCTEN		Pteridium a. latiusculum Pycnanthemum tenuifolium		FACU FAC	Cryptogam	BRACKEN FERN
		4			Nt P-Forb Nt P-Forb	SLENDER MOUNTAIN MINT
PYCVIR		Pycnanthemum virginianum		FACW+		COMMON MOUNTAIN MINT
QUEALB		Quercus alba Quercus bicolor		FAC FACW+	Nt Tree	WHITE OAK
QUEBIC QUEMUH		Quercus muhlenbergii		UPL	Nt Tree Nt Tree	SWAMP WHITE OAK CHINOUAPIN OAK
OUEVEL		Ouercus velutina		UPL	Nt Tree	BLACK OAK
RANABO		Ranunculus abortivus		FACW-	Nt A-Forb	SMALL-FLOWERED BUTTERCUP
RHUCOL		Rhus c. latifolia		UPL	Nt Shrub	SHINING SUMAC
RHUGLA		Rhus glabra		UPL	Nt Shrub	SMOOTH SUMAC
RHURAD		Rhus radicans		FAC+	Nt W-Vine	POISON IVY
RHUTYP		Rhus typhina		UPL	Nt Tree	STAGHORN SUMAC
RIBAME		Ribes americanum		FACW	Nt Shrub	WILD BLACK CURRANT
RIBCYN		Ribes cynosbati		UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY
ROBPSE		ROBINIA PSEUDOACACIA		FACU-	Ad Tree	BLACK LOCUST
RORPAF		Rorippa p. fernaldiana		OBL	Nt A-Forb	MARSH CRESS
ROSCAR		Rosa carolina		FACU-	Nt Shrub	PASTURE ROSE
ROSMUL		ROSA MULTIFLORA		FACU	Ad Shrub	MULTIFLORA ROSE
RUBALL		Rubus allegheniensis		2 FACU+	Nt Shrub	COMMON BLACKBERRY
RUBFLA		Rubus flagellaris		1 FACU-	Nt Shrub	COMMON DEWBERRY
RUBHIS		Rubus hispidus		3 FACW	Nt Shrub	SWAMP DEWBERRY
RUBOCC		Rubus occidentalis	9	5 UPL	Nt Shrub	BLACK RASPBERRY
RUMCRI	0	RUMEX CRISPUS	- 3	L FAC+	Ad P-Forb	CURLY DOCK
RUMORB	8	Rumex orbiculatus	- [5 OBL	Nt P-Forb	GREAT WATER DOCK
SALBAB	C	SALIX BABYLONICA	-:	3 FACW	Ad Tree	WEEPING WILLOW
SALDIS		Salix discolor		3 FACW	Nt Shrub	PUSSY WILLOW
SALHUM	6	5 Salix humilis		3 FACU	Nt Shrub	PRAIRIE WILLOW

Table 2 (cont.). All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

ACRONYM	C SCIENTIFIC NAME		W WETNESS	3 P	HYSIOGNOMY	COMMON NAME
SALINT	l Salix interior		-5 OBL	N	It Shrub	SANDBAR WILLOW
SALNIG	4 Salix nigra		~5 OBL		It Tree	BLACK WILLOW
SAMCAN	l Sambucus canadensis		-2 FACW-		It Shrub	ELDERBERRY
SANGRE	2 Sanicula gregaria		-1 FAC+		It P-Forb	CLUSTERED BLACK SNAKEROOT
SAPOFF	O SAPONARIA OFFICINALIS		3 FACU		d P-Forb	BOUNCING BET
SASALB	3 Sassafras albidum		3 FACU		It Tree	SASSAFRAS
SAXPEN	10 Saxifraga pensylvanica		-3 FACW		Nt P-Forb	SWAMP SAXIFRAGE
SCIFLU	4 Scirpus fluviatilis		-5 OBL			RIVER BULRUSH
SCIPUN	5 Scirpus pungens		-5 OBL			CHAIRMAKER'S RUSH
SCRLAN	5 Scrophularia lanceolata		-1 FAC+		Nt P-Forb	EARLY FIGWORT
SCRMAR	4 Scrophularia marilandica				Nt P-Forb	LATE FIGWORT
SCUEPI	5 Scutellaria epilobiifoli		-5 OBL		Nt P-Forb	MARSH SKULLCAP
SCULAT	5 Scutellaria lateriflora		-5 OBL		Nt P-Forb	MAD-DOG SKULLCAP
SENPAU	6 Senecio pauperculus		-1 FAC+		Nt P-Forb	BALSAM RAGWORT
SETFAB	O SETARIA FABERI		2 FACU+		Ad A-Grass	
SETGLA	O SETARIA GLAUCA		0 FAC			YELLOW FOXTAIL
SILNOC	0 SILENE NOCTIFLORA		5 UPL		Ad A-Forb	NIGHT-FLOWERING CATCHFLY
SILSTE	6 Silene stellata		5 UPL		Mt P-Forb	STARRY CAMPION
SILINI	5 Silphium integrifolium		5 UPL		Nt P-Forb	
SISALB	7 Sisyrinchium albidum		3 FACU		Nt P-Forb	COMMON BLUE-EYED GRASS
SIUSUA	7 Sium suave		-5 OBL		Nt P-Forb	TALL WATER PARSNIP
SMIRAC	3 Smilacina racemosa	ז כ				THERY FALSE SOLOMON'S SEAL
SMISTE	5 Smilacina stellata					RRY FALSE SOLOMON'S SEAL
SMIECI	5 Smilax ecirrhata	Τ. 1	5 UPL		Nt P-Forb	UPRIGHT CARRION FLOWER
SMITAH	5 Smilax t. hispida		5 UPL		Nt W-Vine	BRISTLY CAT BRIER
SOLDUL	0 SOLANUM DULCAMARA		0 FAC		Ad W-Vine	
SOLALT	l Solidago altissima					BITTERSWEET NIGHTSHADE
			3 FACU		Nt P-Forb	TALL GOLDENROD
SOLCAN	1 Solidago canadensis 4 Solidago gigantea		3 FACU		Nt P-Forb	CANADA GOLDENROD
SOLGIG SOLGRG	2		-3 FACW		Nt P-Forb	LATE GOLDENROD
						MON GRASS-LEAVED GOLDENROD
SOLGRN		U				RY GRASS-LEAVED GOLDENROD
SOLNEM	4 Solidago nemoralis		5 UPL		Nt P-Forb	OLD-FIELD GOLDENROD
SOLPAT	9 Solidago patula		-5 OBL		Nt P-Forb	
SOLRIG	4 Solidago rigida		4 FACU-		Nt P-Forb	
SOLSEM	0 SOLIDAGO SEMPERVIRENS		3 [FACU]		Ad P-Forb	
SOLSPE	7 Solidago speciosa		5 UPL		Nt P-Forb	
SOLULM	5 Solidago ulmifolia		5 UPL		Nt P-Forb	ELM-LEAVED GOLDENROD
SORNUT	5 Sorghastrum nutans		2 FACU+		Nt P-Grass	
SPAPEC	4 Spartina pectinata		-4 FACW+		Nt P-Grass	PRAIRIE CORD GRASS
SPIALB	7 Spiraea alba		-4 FACW+		Nt Shrub	MEADOWSWEET
SPOHET	10 Sporobolus heterolepis		4 FACU-		Nt P-Grass	
STAPAH	5 Stachys p. homotricha		-5 OBL		Nt P-Forb	WOUNDWORT
STATEH	5 Stachys t. hispida		-4 FACW+		Nt P-Forb	MARSH HEDGE NETTLE
STEMED STISPA	O STELLARIA MEDIA		3 FACU		Ad A-Forb	COMMON CHICKWEED
	7 Stipa spartea	DT TO	5 UPL		Nt P-Grass	
SYMORB	O SYMPHORICARPOS ORBICULAT	105			Ad Shrub	CORALBERRY
TAROFF TEUCAN	0 TARAXACUM OFFICINALE 3 Teucrium canadense		3 FACU		Ad P-Forb	COMMON DANDELION
THADAD			-3 FACW -2 FACW-		Nt P-Forb Nt P-Forb	GERMANDER
THADAD	5 Thalictrum dasycarpum 7 Thalictrum dioicum		2 FACU+			PURPLE MEADOW RUE
THLARV	0 THLASPI ARVENSE		Z FACU+		Nt P-Forb	EARLY MEADOW RUE PENNY CRESS
TRAOHI	2 Tradescantia ohiensis		5 UPL 2 FACU+		Ad A-Forb	
TRADUB	0 TRAGOPOGON DUBIUS		5 UPL		Nt P-Forb Ad B-Forb	COMMON SPIDERWORT
TRAPRA	0 TRAGOPOGON PRATENSIS		5 UPL			SAND GOAT'S BEARD
	1 Typha angustifolia				Ad B-Forb	
TYPANG TYPLAT	1 Typha angustiroila 1 Typha latifolia		-5 OBL		Nt P-Forb	NARROW-LEAVED CATTAIL
ULMPUM	0 ULMUS PUMILA		-5 OBL		Nt P-Forb	BROAD-LEAVED CATTAIL
URTPRO	2 Urtica procera		5 UPL -1 FAC+		Ad Tree	SIBERIAN ELM
VERTHA	0 VERBASCUM THAPSUS		-1 FAC+ 5 UPL		Nt P-Forb Ad B-Forb	TALL NETTLE COMMON MULLEIN
VERHAS	4 Verbena hastata		-4 FACW+		Nt P-Forb	
VERSTR	4 Verbena nastata 4 Verbena stricta		5 UPL		Nt P-Forb	HOARY VERVAIN
VERURU	5 Verbena urticifolia		5 UPL		Nt P-Forb	HAIRY WHITE VERVAIN
VERORU	5 Verbena urticiforia 5 Viburnum lentago		-1 FAC+		Nt Shrub	NANNYBERRY
VIBOPU		2	[FACU]			NANNIBERRI UROPEAN HIGHBUSH CRANBERRY
VIBORU	5 Viburnum rafinesquianum	3	[FACU] 5 [IDT.		Nt Shrub	DOWNY ARROW-WOOD
VIDEAL	3 Viola sororia		1 FAC-		Nt P-Forb	
VITAES	7 Vitis aestivalis		3 FACU		Nt W-Vine	SUMMER GRAPE
*	, *****		2 2200		TIC N VIIIC	- OF LITTLE CHANT II

Table 2 (cont.). All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

ACRONYM	C SCIENTIFIC NAME	W WETNESS	PHYSIOGNOMY COMMON NAME
VITRIP	2 Vitis riparia	-2 FACW-	Nt W-Vine RIVERBANK GRAPE
XANAME	3 Xanthoxylum americanum	5 UPL	Nt Shrub PRICKLY ASH
ZIZAUR	7 Zizia aurea	-1 FAC+	Nt P-Forb GOLDEN ALEXANDERS

Table 3. Wildlife Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

Common Name	Scientific Name	Status*	Pilot Section
Barred Owl	Strix varia	NL	1
Hairy Woodpecker	Picoides villosus	NL	1
Tree Swallow	Iridoprocne bicolor	NL	1
American Robin	Turdus migratorius	NL	1, 2, 3, 4
European Starling	Sturnus vulgaris	NL	1, 2, 3, 4
Northern Cardinal	Cardinalis cardinalis	NL	1, 2, 3, 4
Song Sparrow	Melospiza melodia	NL	1, 2, 3, 4
Eastern Red Squirrel	Scurius niger	NL	1, 2, 4
American Crow	Corvus brachyrhynchos	NL	1, 3, 4
Black-capped Chickadee	Parus atricapillus	NL	1, 4
Blue Jay	Cyanocitta cristata	NL	2, 4
Mourning Dove	Zenaida macroura	NL	3, 4
Black Swallowtail	Papilio polyxenes asterius	NL	4
Snowberry Clearwing	Hemaris diffinis	NL	4
American Coot	Fulica americana	NL	J-Pit
American Goldfinch	Cardulelis tristis	NL	J-pit
Canada Goose	Branta Canadensis	NL	J-Pit
Common Yellowthroat	Geothlypis trichas	NL	J-pit
Green Heron	Butorides striatus	NL	J-pit
Mallard	Anas platyrhynchos	NL	J-Pit
Ring-billed Gull	Larus delawarensis	NL	J-Pit
American Tree Sparrow	Spizella arborea	NL	J-Pit, 1, 2
Red-winged Blackbird	Agelaius phoeniceus	NL	J-Pit, 3, 4
Northern "Baltimore" Oriole	Icterus galbula	NL	J-Pit, 4

^{*} NL = not listed; SE = state endangered; SSC = Species of Special Concern; SR = state rare; SG = significant natural area or habitat; LT = threatened at the federal level; LE = endangered at the federal level; LC = federal candidate species.

APPENDIX III:

REPRESENTATIVE PHOTOGRAPHS

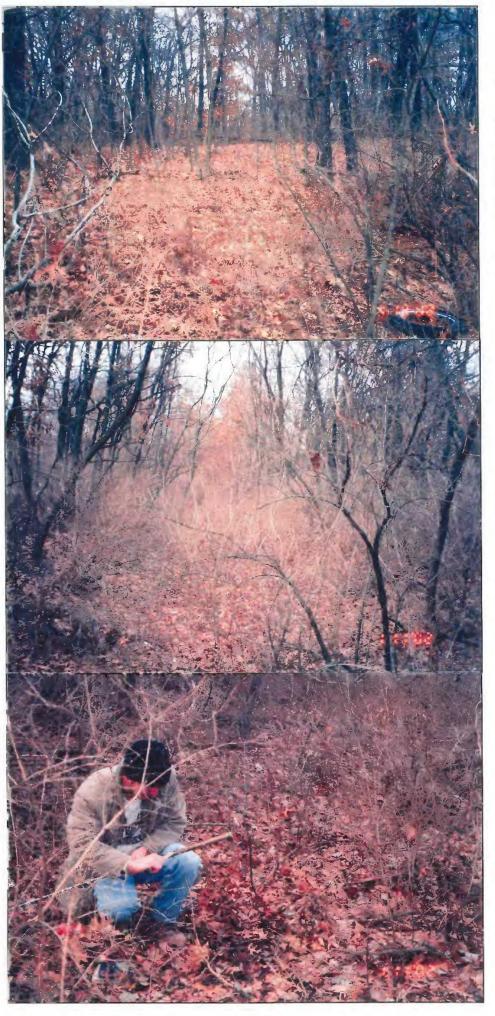


Photo date: 1/11/02

Photo showing a Black Oak-dominated remnant dune (Area 1) located on Pilot Section 1 west of Colfax Street; view southeast

PHOTO 2

Photo date: 1/11/02

Photo showing an old road running along the remnant dune in Area 1, east of Colfax Street. Note the honeysuckle growth within the historically cleared area; view west.

РНОТО 3

Photo date: 1/11/02

Location of Data Point 1 within the old road corridor running through the eastern of Area 1.

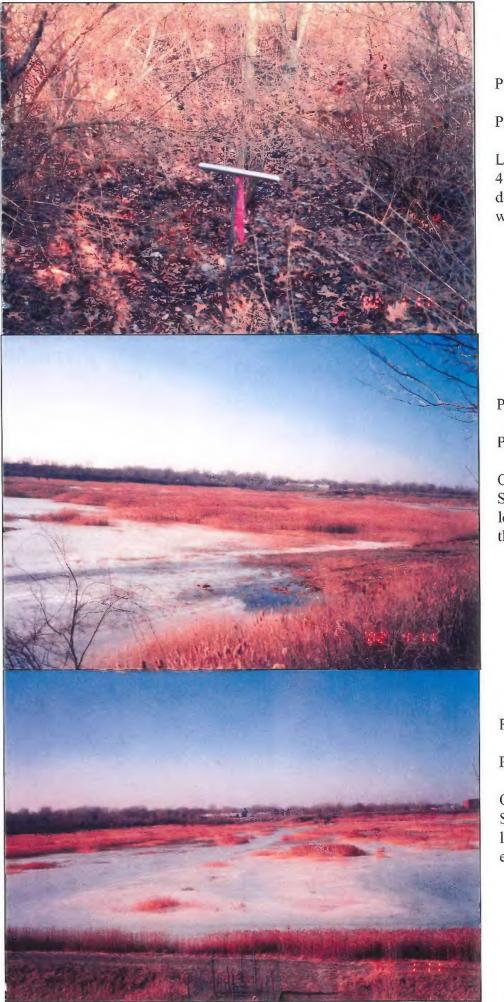


Photo date: 1/11/02

Location of Data Point 4 within a dune depression in Area 1, west of Colfax Street.

PHOTO 5

Photo date: 1/11/02

Overview of the Green Space Site (J-Pit) looking southwest from the northern slope.

PHOTO 6

Photo date: 1/11/02

Overview of the Green Space Site (J-Pit) looking west from the eastern slope.

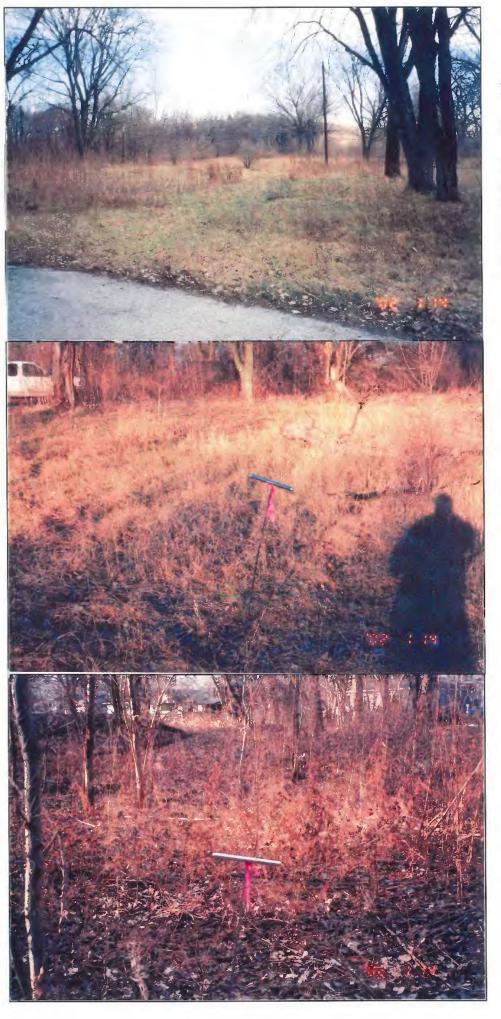


Photo date: 1/14/02

Representative photo of Area 2a in Pilot Section 2; view northeast. Note weeds and abundance of non-native grass species.

PHOTO 8

Photo date: 1/14/02

Photo showing location of Data Point 5 within Area 2a; view west.

PHOTO 9

Photo date: 1/14/02

Photo showing location of Data Point 6 within a small, isolated wetland (Area 2b) near the southwestern corner of Pilot Section 2; view southeast.

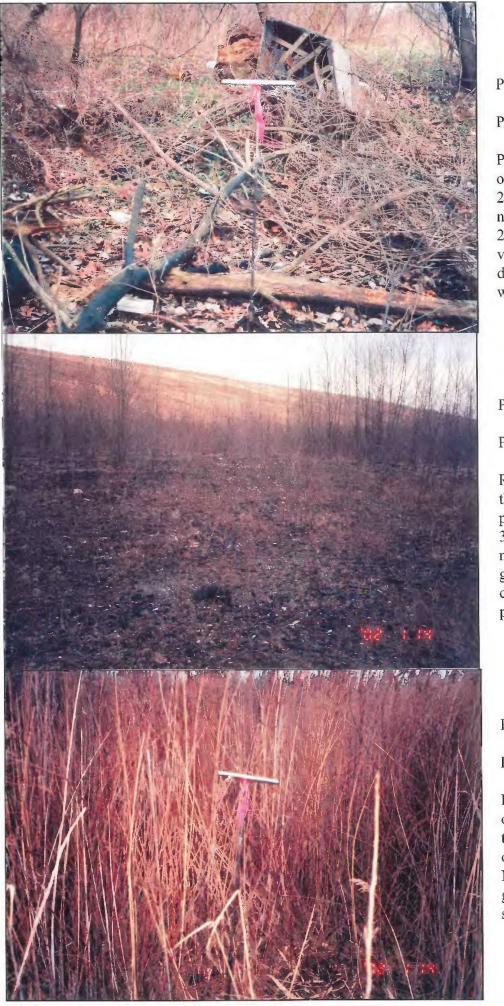


Photo date: 1/14/02

Photo showing location of Data Point 7 (Area 2a) within a depression near the wetland (Area 2b) shown in Photo 9; view north. This area does not qualify as wetland.

PHOTO 11

Photo date: 1/14/02

Representative photo of the northwestern portion of Pilot Section 3 (Area 3a); view northeast. Note that the ground is uniformly covered by ground plastic and rubber.

PHOTO 12

Photo date: 1/14/02

Photo showing location of Data Point 18 near the northeastern corner of Area 3a; view south. Note Common Reed growing in non-hydric soil.



Photo date: 1/14/02

Photo showing location of Data Point 13 within a former dune portion of Area 3a; view southeast.



PHOTO 14

Photo date: 1/14/02

Representative photo of the emergent wetland located (Area 3c) on the southern end of Pilot Section 3. Note Reed Canary Grass, Cattail, and Purple Loosestrife abundance.



Photo date: 1/14/02

A typical debris pile in Area 3a.



Photo date: 1/14/02

Overview of existing conditions along the northern and eastern portions of Area 3a. This area is not wetland.

PHOTO 17

Photo date: 1/14/02

Photo showing location of Data Point 21 within the northwestern portion of Area 3a; view north.

PHOTO 18

Photo date: 1/14/02

Overview of the large emergent wetland (Area 4b) located on the southern half of Pilot Section 4; view southeast. Note dominance by Common Reed, Cattail, and Purple Loosestrife.



Photo date: 1/14/02

Photo showing location of the surface connection between the large emergent wetland and the swale of Area 4b; view west. The large wetland is located on left side of photo and the swale is to the right.

PHOTO 20

Photo date: 1/14/02

Photo showing location of Data Point 10 on the eastern upland portion Area 4a; view north.

PHOTO 21

Photo date: 1/14/02

Photo showing location of Data Point 11 within Area 4b.

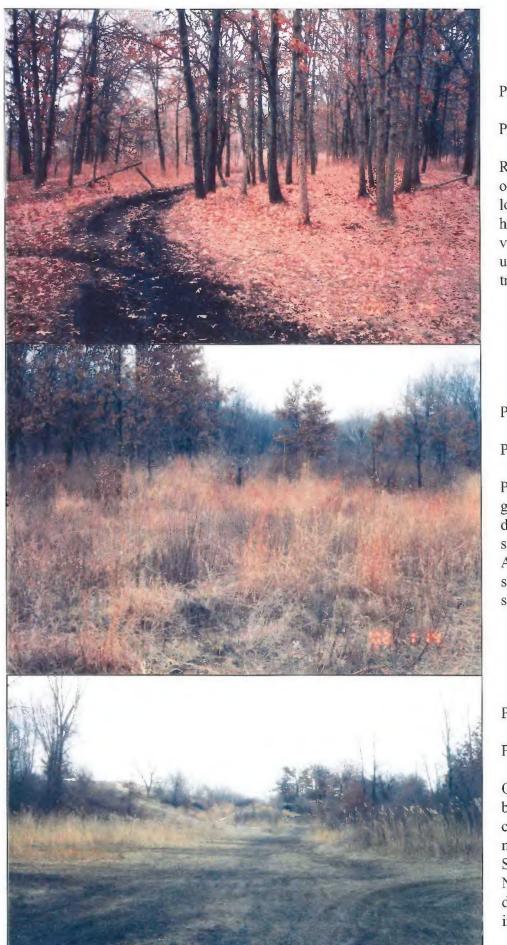


Photo date: 1/14/02

Representative photo of one of the dunes located in the southern half of Pilot Section 4; view west. Notice the unauthorized ATV trails.

PHOTO 23

Photo date: 1/14/02

Photo showing the graded portion of a dune at the southwestern corner of Area 4a that currently supports high quality sand prairie.

PHOTO 24

Photo date: 1/14/02

Overview of the borrow pit (Area 4c) centrally located on the northern half of Pilot Section 4; view east. Note: Photo taken during initial site investigation



Photo date: 1/14/02

Photo showing location of Data Point 16 within a wooded depression in the northern half of Pilot Section 4. This area does not qualify as wetland.

PHOTO 26

Photo date: 1/14/02

Photo showing the location of Data Point 17 near the northeastern corner of Area 4a; view northeast.

PHOTO 27

Photo date: 09/03/03

Overview of Area 4c during the 2003 re-evaluation, view east.



Photo date: 09/03/03

Photo showing location of Data Point 14 within Area 4c, view west.

РНОТО 29

Photo date: 09/03/03

Photo showing location of Data Point 15 in Area 4a, view southeast.

PHOTO 30

Photo date: 09/04/2003

Photo showing location of Data Point 22 in Area 3b, view north.



PHOTO 31

Photo date: 09/04/2003

Photo showing location of Data Point 23 in Area 3c, view north.

APPENDIX IV:

ENDANGERED AND THREATENED SPECIES TABLES

Table 4. Endangered, Threatened and Rare Species, High Quality Natural Communities and Significant Natural Areas Reported within One-half Mile of the J-Pit Redevelopment Project Site*.

Туре	Common Name	Scientific Name	State Status	Federal Status	Location	Date Of Last Record
Amphibian	Mudpuppy	Necturus maculosus	SSC		Section 11 NW 1/4	1986
Reptile	Blanding's Turtle	Emydoidea blandingii	SE	LC		
Insect	Karner Blue	Lycaeides melissa samuelis	SE	LE	Section 11	1974
Mammal	Franklin's Ground Squirrel	Spermophilus franklinii	SE		Section 11 SE & NW	1986
Mammal	Indiana Bat	Myotis sodalis	SE	LE		
Bird	Black Tern	Chlidonias niger	SE	LC		
Bird	Bald Eagle	Haliaeetus leucocephalus	SE	LT		
Plant	Northern Bush- honeysuckle	Diervilla lonicera	SR		Section 11 NE ¹ / ₄	1999
Prairie	Wet Sand Prairie		SG		Section 13 N ½ & NE	1982
Savanna	Dry-mesic Sand Savanna		SG		Section 13 N ½ & NE	1982

^{*} Data supplied by Indiana Department of Natural Resources, Division of Nature Preserves on February 18, 2002, and the US Fish and Wildlife Service on March 7, 2002.

^{**} SE = state endangered; SSC = Species of Special Concern; SR = state rare; SG = significant natural area or habitat; LT = threatened at the federal level; LE = endangered at the federal level; LC = federal candidate species.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
BLOOMINGTON FIELD OFFICE (ES)
620 South Walker Street
Bloomington, Indiana 47403-2121
(812) 334-4261 FAX 334-4273

Nay 30, 1996

Mr. Brian McBride Rust Environmental & Infrastructure, Inc. 1240 East Diahl Road Naperville, Illinois 60563

Dear Mr. McBride:

This responds to your latter dated December 1, 1995, requesting information regarding the potential occurrence of critical habitat and/or Federally endangered and threatened species for the proposed Glenwood Ridge Restricted Wasta Disposal Facility in Gary, Indiana. The site is located in Township 36 North, Range 9 West Section 11 of the Highland Quadrangle.

These comments have been prepared under the authority of the Fish and Wildlife Goordination Act (16 U.S.C. 661 st. seq.) and are consistent with the intent of the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, and the U.S. Fish and Wildlife Service's Mitigation Policy.

THREATENED AND ENDANGERED SPECIES

The area described in your letter is within the range of the Federally endangered persgrine falcon (Falco persgrinus), Indiana bat (Myotis sodalis), bald eagle (Haliaeatus leucocephalus), and the Karner blue butterfly (Lycaeides melissa samuelis). There is no recent survey information for the bald eagle and Indiana bat within the area of interest, however, there are recent records of the Karner blue butterfly and the peregrine falcon utilizing this area.

The habitat of the Karner blue butterfly is characterized by the presence of the wild lupine plant (Lupinus perennis), a member of the pea family. Wild lupine is the only known food source for the larval Karner blue butterfly. Habitat in the midwestern United States is dry and sandy, and includes oak savanna and jack pine and other dune/sandplain communities. The Karner blue usually has 2 broods each year, one in early spring and one in the summer (USFWS, 1992). The Heritage Database has a record from 1974 of the Karner blue butterfly at a site just north of the project area. That area is a historic Karner blue butterfly site and still provides lupine and the potential for reintroduction of the spacies (McGloskey, 1993). If lupine is found in the project area, we recommend that your office recoordinate with us before proceeding with project plans.

Peregrine falcon habitat is usually described as open country along large rivers, lakes, and coastlines. High cliffs of bluffs are often used as most sites, however, breeding is also presently occurring on high buildings, bridges, and other man-made structures in cities.

Bald eagles nest in close proximity to lakes, rivers, or reservoirs. The eagles construct their nests near habitat acotones, such as lakeshores, rivers, and timber management areas (clearcuts or selective cuts). Tolerance of human activity during the nesting season has been variable, but, ideally, human disturbance of eagles should be avoided. The bald eagle's food base from the watershed includes carrien, waterfowl, and especially fish.

The Indiana bat uses woodlands during the summer when maternity colonies utilize trees with loose bark for nesting. These bats forage primarily over wooded stream corridors, although they have been collected in grazed woodlots, mature deciduous forests, and pastures with trees.

OTHER SPECIES OF CONCERN

In addition to the above mentioned species, the Blanding's turtle (Emydoidea blandingii), sticky goldenrod (Solidago simplex var gillmanii), and wolf spikerush (Eleocharis wolfii) are also potentially found within the area of interest. These species are not afforded legal protection under the authorities of the Endangered Species Act (as amended); however, agencies are encouraged to conserve these species because there is general concern among resource agencies for their status.

The National Wetland Inventory (NWI) map indicates that there may be palustrine, forested; palustrine, unconsolidated; and palustrine emergent wetlands within the area of interest. Water and other habitat resources of palustrine wetlands are attractive to numerous wildlife species, including birds, bats, and plants. In particular, migratory birds such as wood ducks (Aix sponse), mallards (Anes platyrhynchos), and tree swallows (Tachycineta bicolor) will utilize open-water wetlands and are subject to potential impacts from contaminants. We recommend that project plans be designed to avoid future impacts to the wetland habitat, particularly regarding contamination.

Based on the occurrence of wetlands on and adjacent to the site, certain activities may require a permit under Section 404 of the Clean Water Act. This process is administered by the U.S. Army Corps of Engineers. The Corp address is:

U.S. Army Corps of Engineers Detroit District P.O. Box 1027 Datroit, Michigan 48231

The information forwarded to our office did not mention the contaminants of concern, nor their potential migration pathways. Contamination from this site may migrate to nearby wetlands, waterways, or other areas of acological significance. Pathways of migration may include leachate/ground weter, surface water, and sediment. Under conditions that allow certain contaminants to accumulate in waterways, aquatic organisms can bicaccumulate these elements; consequently, elevated or toxic concentrations may be reached.

Since the contaminants of concern and the pathway of migration are unknown, this letter does not preclude the need for further consultation on this project as required under Section 7 of the Endangered Species Act of 1973, as amended.

The information provided does not include concerns for other wildlife resources. Therefore, the FWS recommends that you also contact the Indiana Department of Natural Resources, Division of Nature Preserves, and Division of Fish and Wildlife concerning possible State-listed species and other resource concerns. Their addresses are:

Indiana Department of Natural Resources Division of Natura Preserves 402 West Washington, Rm W267 Indianapolis, Indiana 46204

Indiana Department of Natural Resources Division of Fish & Wildlife 402 West Washington, Rm W273 Indianapolis, Indiana 46204

We appreciate the opportunity to comment at this early stage of project planning. If we can be of further assistance please contact Robin McWilliams of my staff at (812)334-4261 ext 215.

Sincaraly yours.

David C. Hudak,

Supervisor

cc: Director, Indiana Division of Fish and Wildlife, Indianapolis, IN Katie Smith, Division of Fish and Wildlife, IDNR, Indianapolis, IN IDNR, Division of Natura Preserves, Indianapolis, IN Jim Smith, IDEM, Indianapolis, IN Wayne Fastz, IDNR, Indianapolis, IN IDEM, Emergency Raspensa, Indianapolis, IN U.S. Army Corp of Engineers, Detroit, MI Liz McCloskey, USFWS, NISO, Warsaw, IN Carol Witt-Smith, EPA, RCRA Enforcement Branch, Chicago, IL HRF-8J Carol Alexander, EPA, Chicago, IL ME19J

REFERENCES

U.S. Fish and Wildlife Service. 1992. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Karner Blue Butterfly. Federal Register, Vol. 57, No. 240, 50 CFR Part 17. FINAL RULE.

McCloskey, R. 1993. Survey for Lupine in Northwest Indiana. U.S. Fish and Wildlife Service, Northern Indiana Field Office, Warsaw, Indiana.

4



United States Department of the Interior

FISH AND WILDLIFE SERVICE

BLOOMINGTON FIELD OFFICE (ES) 620 South Walker Street Bloomington, Indiana 47403-2121 (812) 334-4261 FAX 334-4273

March 7, 2002

Mr. Tom Hintz V3 Consultants 7325 Janes Avenue, Suite 100 Woodridge, Illinois 60517

Project No: 01210.w21

Project:

J-Pit Redevelopment Project

Waterway:

Isolated wetlands

Work Type: Land development/redevelopment

Location: Gary, Lake County, Indiana

Dear Mr. Hintz:

This responds to your letter dated February 5, 2002, to Mr. John Rogner of the U.S. Fish and Wildlife Service's Chicago, Illinois Field Office, requesting our comments on the aforementioned project. This office and our Northern Indiana Suboffice, Chesterton, Indiana, have responsibility for addressing projects in Indiana, so your request was forwarded to us for response.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et. seq.) and are consistent with the intent of the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, and the U. S. Fish and Wildlife Service's Mitigation Policy.

The project study area is located within the globally imperiled "dune and swale" ecosystem, which is officially designated as Alkaline Shoredunes Pond/Marsh, Great Lakes Type, and Barrens, Central Midwestern Type (Bowles 1989, TNC 1994). A 1917 map of the original beach ridges is provided as Enclosure No. 1. Information on the geology of the dune and swale ecosystem can be found within Blatchley 1898, Bieber 1951, and Thompson 1994.

The remaining natural sites within this ecosystem are characterized by dry sand dunes separated by alternating muck filled wet swales. These represent old beach ridges deposited during a higher stage of glacial Lake Michigan and are located inland from the modern lake shoreline. Upland barrens vegetation is characterized by sand savanna - open grown black oak dispersed among sand prairie vegetation while alkaline shoredunes support wet prairie, panne, shrub swamp, marsh and pond vegetation. Both flora and fauna diversity are extremely high. One of the State Nature Preserves alone supports greater diversity and more State-listed species than any other site in Indiana. We recommend you request specific information about the natural areas and State-listed species from the Indiana Department of Natural Resources, Division of Nature Preserves (IDNR, DNP)

The proposed project area consists of 4 undeveloped or previously developed and currently vacant parcels adjacent to a former sand mine known as the J-Pit and the Gary Landfill, which is now closed. Section 1 is along the south side of 15th Avenue, east and west of Colfax Street. However, the portion of the parcel east of Colfax does not exist as drawn on the enclosed maps. Most of the south half of this area has been excavated for some purpose related to the Landfill (Enclosure No. 2 and Photograph No. 1). The narrow section remaining along 15th Avenue contains a small remnant of the native black oak savanna and dry sand prairie (Photograph No. 2) and 2 churches with ancillary facilities (Enclosure No. 2). The Palustrine emergent seasonal wetland (PEMC) shown on the copy of the National Wetlands Inventory (NWI) map enclosed with your letter exists only as a mostly dry remnant behind the churches because of the excavation of the site and alteration of the hydrology. Given the small size of undeveloped land available in this portion of Section 1, we doubt there is much development potential.

The portion of Section 1 west of Colfax has several occupied buildings, native black oak savanna on remnant sand dunes (Photograph No. 3), and previously leveled sand dunes (Enclosure No. 3). It appears from your enclosures that the previously heavily developed western portion shown on the aerial photograph is not included within Section 1 and that the line is somewhere within the wooded portion of the Section. Since black oak trees still exist on sand dunes, a botanical survey should be conducted on this site prior to any development proposals to determine whether or not any Indiana-listed plant species are present.

Section 2 is a previously developed parcel south of the J-Pit between Fairbanks Street and Colfax Street. This area was once primarily residential land, like the lands to the south of platted 22^{nd} Avenue, its southern border. The houses and other buildings and developments have been removed and the land is vacant, with scattered patches of native oaks and numerous old shade trees, such as Siberian elm, Eastern cottonwood, and silver maple (Photograph No. 4). Given the previously extensively disturbed nature of this Section, native habitats are not expected to be present.

Section 3 is an irregularly-shaped parcel north of 23rd Avenue and west of platted Calhoun Street on the south side of the Gary Landfill. Much of the southeastern portion of this parcel, between platted Calhoun Street and King Street, is wetland (Photographs No. 5 and No. 6). It appears that the portion north of platted 22rd Avenue is previously disturbed upland (Enclosure No. 4). The small area that extends west to Colfax north of existing automotive scrap yards is also previously disturbed upland (Photograph No. 7). The portion of the Section that is wetland would not be available for development, but the majority of the site, north of platted 22rd Avenue, should be available for redevelopment after appropriate surveys for possible contaminants.

Section 4 is located between Fairbanks Street and the EJ&E Railroad tracks. The J-Pit is the north border and platted 23rd Avenue is the southern border. The north half of the parcel was previously developed to some extent, possibly consisting of leveling of the dunes and only a few construction activities since a large number of young oaks and other native species still remain (Photograph No. 8). This area, north of platted 22rd Avenue, is fenced and has unimproved drives within it (Enclosure No. 5). If development is proposed, a botanical survey should first be conducted to determine whether or not any rare native species are present.

The south half of Section 4 is native dune and swale habitat, with a large emergent wetland interspersed with narrow upland ridges supporting black oak savanna (Photograph No. 19). Residential land is south of this wetland except in the southwest corner, where there is a community park that includes boardwalks through the wetlands and paved trails through the savanna. The south half of Section 4, south of platted 22^{nd} Avenue, should be incorporated into this existing park and managed as natural habitat (Enclosure No. 6).

As part of the environmental impact review, it will be necessary to conduct a detailed wetland delineation of the sites. Given the rareness of the dune and swale ecosystem, the U.S. Fish and Wildlife Service believes that avoidance of wetland impacts is the preferred course of action and should be attainable here because most

of the lands being evaluated are previously disturbed and/or uplands. The U.S. Army Corps of Engineers, Detroit District, and Indiana Department of Environmental Management will have to determine whether or not a permit would be required for the filling of wetlands in the project area. However, if Federal funds are to be used for any aspect of the proposed redevelopment project, the Federal agency has an obligation to minimize the destruction, loss or degradation of wetlands pursuant to Executive Order 11990, as amended by Executive Order 12608, concerning protection of wetlands, regardless of the need for a wetland fill permit.

ENDANGERED SPECIES

The proposed project is within the range of the Federally endangered Indiana bat (Myotis sodalis) and Karner blue butterfly (Lycaeides melissa samuelis) and the threatened bald eagle (Haliaeetus leucocephalus). There is no habitat available in the project vicinity for the Indiana bat or bald eagle. The Karner blue butterfly is known from Ivanhoe Dune and Swale Nature Preserve about 1 mile north of the proposed project area. It is also known to the northwest in several Nature Preserves in eastern Hammond. However, the major population in Indiana is within the Indiana Dunes National Lakeshore several miles east of the project area. The FWS is considering reintroducing the Karner blue butterfly to suitable dune and swale habitats in western Gary and eastern Hammond as part of the recovery process for the species, but no final determination has been made.

The proposed project area is also within the range of the following Species of Concern being considered for listing as threatened or endangered: Black tern (Chlidonias niger) and Blanding's turtle (Emydoidea blandingi). These species live or breed within wetlands such as those found at the dune and swale habitats around the proposed project area. Black terns nested several years ago along the Grand Calumet River several miles northwest of the project area. Suitable habitat still remains at that site and there may be suitable habitat at other locations along the river, but this species is not expected to be present within the proposed project area. Blanding's turtles have been found both within the Grand Calumet River and the dune and swale wetlands north and south of the river, but their status in the wetland remnants at the proposed project area is unknown. These species are not afforded legal protection under the authorities of the Act; however, the FWS encourages consideration of these species in project planning because there is general concern among resource agencies for their status.

This precludes the need for further consultation on this project as required under Section 7 of the Endangered Species Act of 1973, as amended. However, should new information arise pertaining to project plans or a revised species list be published, it will be necessary for the Federal agency to reinitiate consultation.

We appreciate the opportunity to comment at this early stage of project planning. As plans progress, please keep us informed of project activities. If you have any questions about our comments and recommendations, please call Elizabeth McCloskey at (219) 983-9753.

Sincerely yours,

Søtt E. Pruitt

Supervisor

cc: Marty Maupin, IDEM, Office of Water Management, Indianapolis, IN Environmental Coordinator, IN Division of Fish & Wildlife, Indianapolis, IN Tom Post, Indiana Division of Nature Preserves, Medaryville, IN



Photograph No. 1. Looking east from Colfax Street at the excavated southwest side of Section 1, showing that most of the area is gone.



Photograph No. 2. A general view within the remnant of dune and oak savanna remaining near the southeast corner of $15^{\rm th}$ Avenue and Colfax Street in Section 1.



Photograph No. 3. Looking west from Colfax Street into the dune and oak savanna in the portion of Section 1 west of Colfax.



Photograph No. 4. Looking west into the former residential area west of Colfax Street in Section 2.



Photograph No. 5. Looking east/southeast at the wetland and remnant of dune and savanna in the southeast portion of Section 3, with 23rd Avenue beyond the oaks and Bivona Medical Technologies at left background.



Photograph No. 6. Looking north along the platted line of King Street from near 23rd Avenue, showing the wetland and remnant of oak savanna on dunes.



Photograph No. 7. The northwestern extension of Section 3, looking east from Colfax Street, with Gary Landfill to the north.



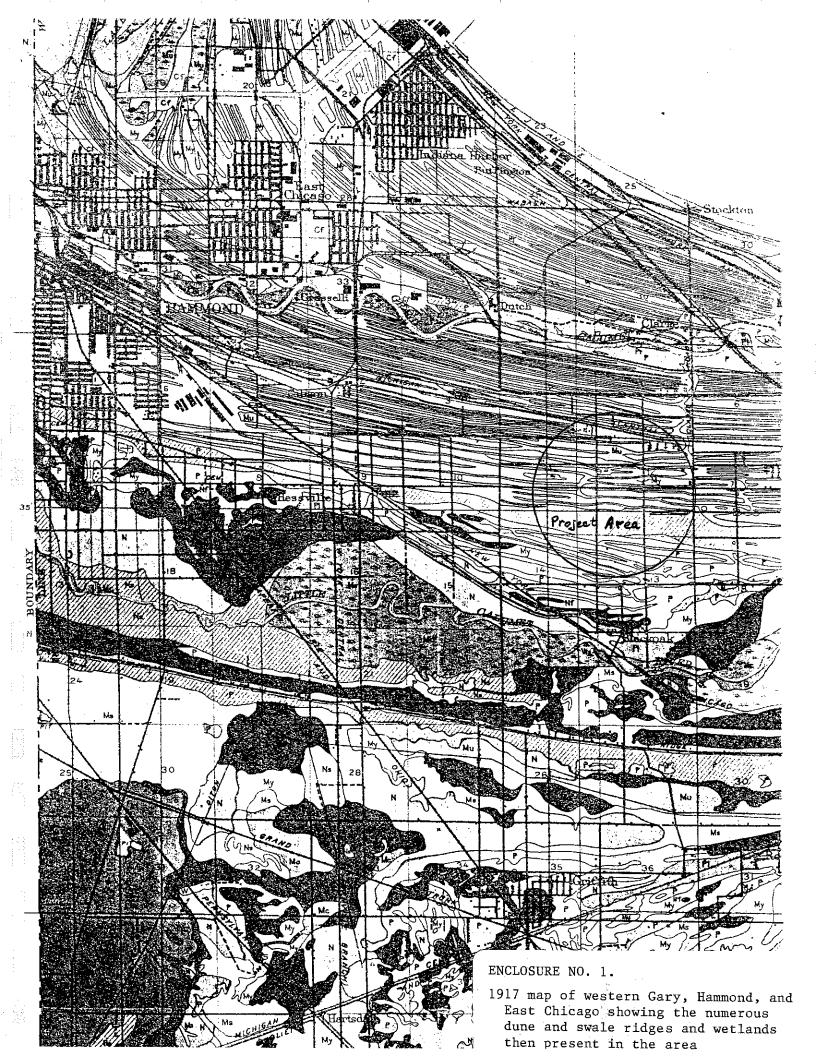
Photograph No. 8. Looking west/northwest across the northern half of Section 4 from the end of Fairbanks Street at platted $22^{\rm nd}$ Avenue.

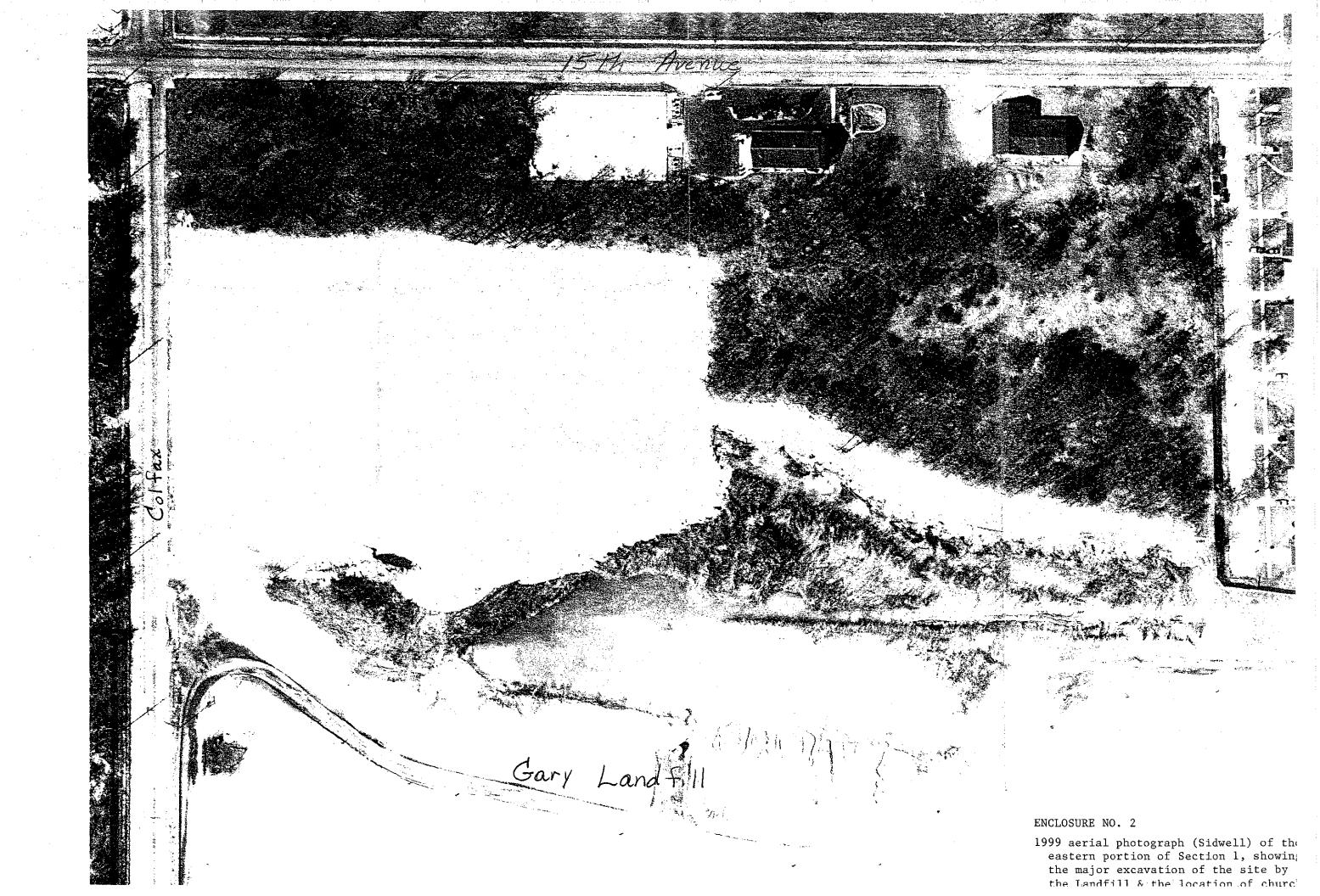


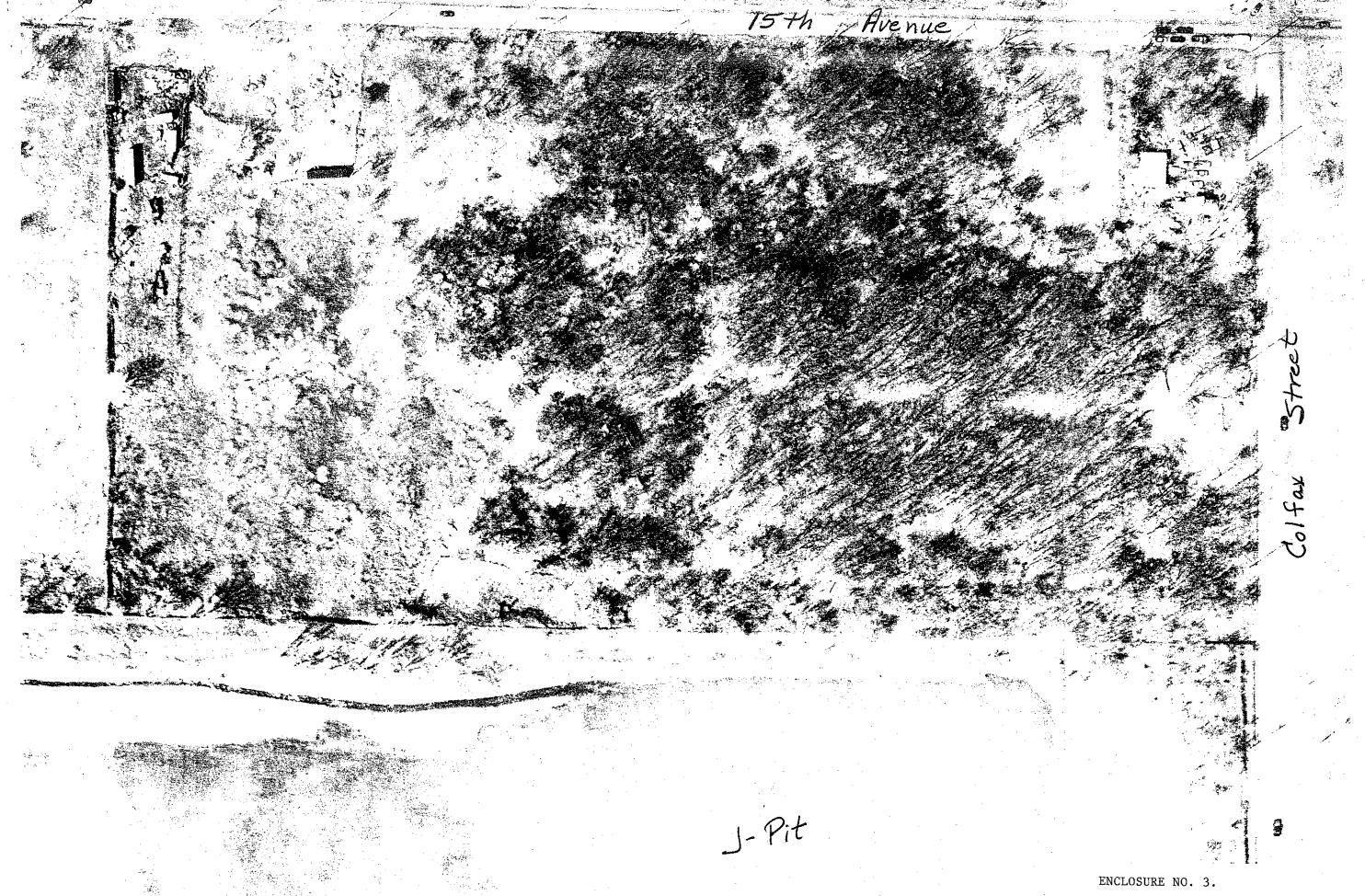
Looking west from Fairbanks Street at the dune and swale remnant in the south half Photograph No. 9. of Section 4

REFERENCES

- Bieber, C.L. 1951. Tolleston and Post-Tolleston Beaches and Bars in Lake County, Indiana. Proceedings of the Indiana Academy of Science 61:176-179.
- Blatchley, W.S. 1898. The geology of Lake and Porter Counties, Indiana. pp. 25-104, Indiana Department of Geology and Natural Resources Twenty-second Annual Report, Indianapolis, Indiana.
- Bowles, Marlin. 1989. Evaluation of Clarke and Pine, Tolleston Ridges, and Gibson Woods, Lake County, Indiana, as potential National Natural Landmarks. Prepared for National Park Service, U.S. Department of the Interior. The Morton Arboretum, Lisle, Illinois. 23pp plus Appendices.
- The Nature Conservancy. 1994. The conservation of biological diversity in the Great Lakes Ecosystem: Issues and opportunities. Great Lakes Program Office, Chicago, Illinois. 118pp.
- Thompson, Todd A. 1994. History and architecture of wetland development in the Indiana Dunes. Proceedings of the Indiana Academy of Science 103 (3-4): 167-176.

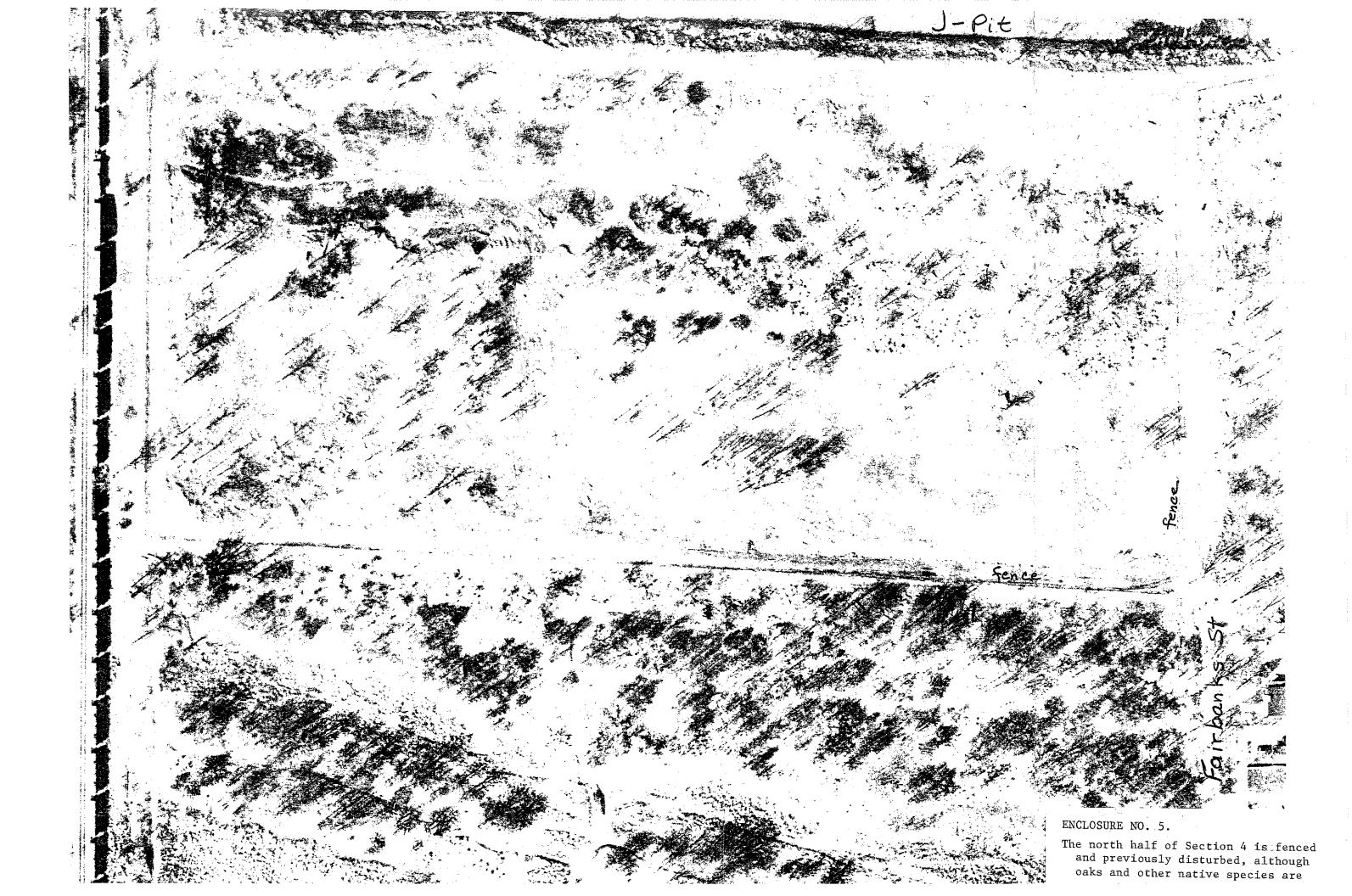


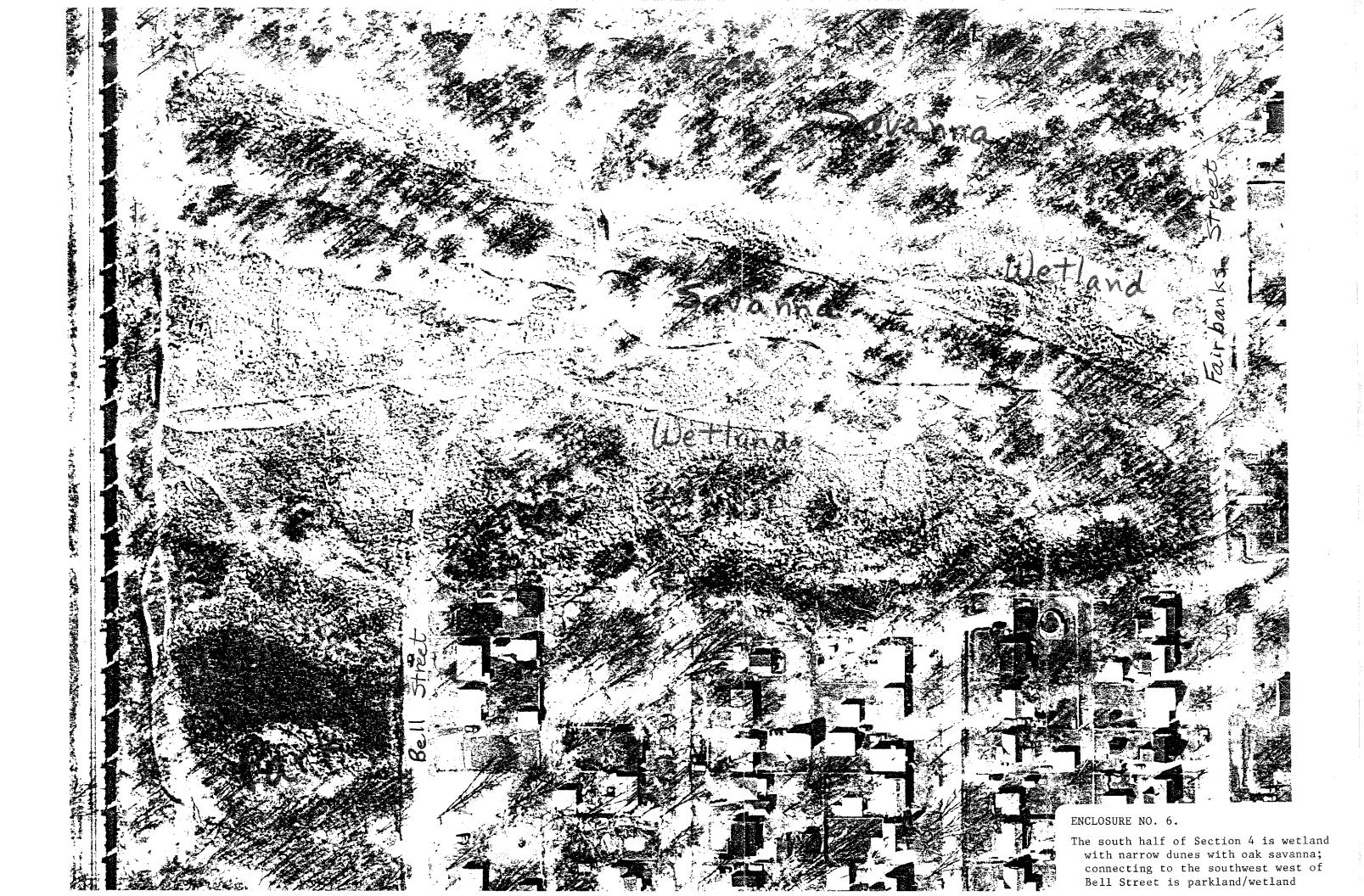




¹⁹⁹⁹ aerial photograph (Sidwell) of the west side of Section 1 at 15th Avenue and Colfax Street

ENCLOSURE NO. 4. Section 3 east of Colfax Street and north of 23rd Avenue, with remnant oak savanna and wetland in southeast section east of King Street Extended







FILE COPY

Engineers

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Scientists

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February 5, 2002

Mr. John Rogner U.S. Fish and Wildlife Service Chicago Illinois Field Office 1000 Hart Road, Suite 180 Barrington, IL 60010

Re:

Endangered Species Consultation Program J-Pit, Redevelopment Project City of Gary, Porter County Indiana

Dear Mr. Rogner:

Enclosed please find an Endangered Species Consultation Program Request for the above referenced property located in the SW ½ of Section 11, Calumet Township, T36N, R9W, Highland, In Quadrangle in Lake County. I am looking for any listed threatened or endangered species that might occur on or within ½ mile of the subject property. The 200-acre parcel is composed of four parcels as indicated below:

Parcel 1: Bound on the W by Hobart Street, on the N by 15th. Avenue, on the E by Dallas Street, and on the SE by the Gary Land fill and on the SW by the J-Pit. Located SW of the intersection of 15th. Avenue and Colfax Street, N of the J-pit, and E of Hobart Street.

Parcel 2: Bound on the W by Fairbanks Street, on the N by the J-Pit, on the E by Colfax Street and on the S by 22nd Avenue. Located S of the J-Pit (S of 21st. Avenue), W of Colfax Street, N of 22nd Avenue, and E of Fairbanks Street.

Parcel 3: Bound on the W by Colfax Street, 22nd Avenue, Hamlin Street and King Street: on the N by the closed Gary Landfill, on the E by Calhoun Street and on the South by 23rd Avenue. Located E of Colfax Street, S of 21st Avenue, N of 23rd Avenue, and W of Calhoun.

Parcel 4: Bound on the W by EJ&E Railroad Line, on the N by the J-Pit, on the E by section 2 and Fairbanks Street, and on the S by 23rd Avenue. Located between 21st and 23rd and E of the IJ & E Railroad Line.

Copies of the property location map, NWI map, and the soil survey map are provided with this request. Please return the completed report to Tom Hintz at this office. Thank you for your assistance and please call with any questions.

Sincerely,

V3 CONSULTANTS

Tom Hintz

Senior Ecologist

TEH/cd



Indiana Department of Natural Resources

Frank O'Bannon, Governor Larry D. Macklin, Director Division of Nature Preserves 402 W. Washington Street, Rm. W267 Indianapolis, IN 46204-2739

February 18, 2002

Mr. Tom Hintz V3 Consultants 7325 Janes Avenue Suite 100 Woodridge IL 60517

Dear Mr. Hintz:

I am responding to your request for information on the endangered, threatened, or rare (ETR) species, high quality natural communities, and natural areas documented within ½ mile of the J-Pit Redevelopment Project area, Gary, Lake County, Indiana. The Indiana Natural Heritage Data Center has been checked and enclosed you will find information on the ETR species and significant areas documented from the project area.

For more information on the animal species mentioned, please contact Katie Smith, Nongame Supervisor, Division of Fish and Wildlife, 402 W. Washington Room W273, Indianapolis, Indiana 46204, (317)232-4080.

The information I am providing does not preclude the requirement for further consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973. You should contact the Service at their Bloomington, Indiana office.

U.S. Fish and Wildlife Service 620 South Walker St. Bloomington, Indiana 47403-2121 (812)334-4261

At some point, you may need to contact the Department of Natural Resources' Environmental Review Coordinator so that other divisions within the department have the opportunity to review your proposal. For more information, please contact:

Larry Macklin, Director
Department of Natural Resources
attn: Stephen H. Jose
Environmental Coordinator
Division of Fish and Wildlife
402 W. Washington Street, Room W273
Indianapolis, IN 46204
(317)232-4080

Please note that the Indiana Natural Heritage Data Center relies on the observations of many individuals for our data. In most cases, the information is not the result of comprehensive field surveys conducted at particular sites. Therefore, our statement that there are no documented significant natural features at a site should not be interpreted to mean that the site does not support special plants or animals.

Due to the dynamic nature and sensitivity of the data, this information should not be used for any project other than that for which it was originally intended. It may be necessary for you to request updated material from us in order to base your planning decisions on the most current information.

Thank you for contacting the Indiana Natural Heritage Data Center. You may reach me at (317)232-8059 if you have any questions or need additional information.

Sincerely,

Ronald P. Hellmich Ronald P. Hellmich

Indiana Natural Heritage Data Center

enclosure: data sheet

ENDANGERED, THREATENED AND RARE SPECIES, HIGH QUALITY NATURAL COMMUNITIES, AND SIGNIFICANT NATURAL AREAS DOCUMENTED WITHIN 1/2 MILE OF THE J-PIT REDEVELOPMENT PROJECT AREA, GARY, LAKE COUNTY, INDIANA

TYPE HIGHLAND	SPECIES NAME	COMMON NAME	STATE	<u>FED</u>	LOCATION	DATE COMMENT
Amphibian	NECTURUS MACULOSUS	MUDPUPPY	SSC	**	T36NR09W 11 NWQ	1986
Insect	LYCAEIDES MELISSA SAMUELIS	KARNER BLUE	SE	LE	T36NR09W 11	1974
Mammal	SPERMOPHILUS FRANKLINII	FRANKLIN'S GROUND SQUIRREL	SE	**	T36NR09W 11 SEQ NWQ	1986
Prairie	PRAIRIE - SAND WET	WET SAND PRAIRIE	SG	**	T36NR09W 13 NH NEQ	1982
Savanna	SAVANNA - SAND DRY-MESIC	DRY-MESIC SAND SAVANNA	SG	**	T36NR09W 13 NH NEQ	1982
Vascular Plant	DIERVILLA LONICERA	NORTHERN BUSH-HONEYSUCKLE	SR	**	T36NR09W 11 NEQ	1999

STATE:

SX=extirpated, SE=endangered, ST=threatened, SR=rare, SSC=special concern, WL=watch list, SG=significant,** no status but rarity warrants concern LE=endangered, LT=threatened, LELT=different listings for specific ranges of species, PE=proposed endangered, PT=proposed threatened, E/SA=appearance similar to LE species, **=not listed FEDERAL:





Engineers

7325 Janes Avenue

Scientists | Suite 100

Surveyors Woodridge, IL 60517

630.724.9200

Fax: 630.724.9202

www.v3consultants.com

February 5, 2002

Mr. Ronald Hellmich Indiana Department of Natural Resources Division of Nature Preserves 402 W. Washington Street W273 Indianapolis, Indiana 46204

Re:

Endangered Species Consultation

J-Pit Redevelopment Project Gary, Lake County, Indiana

Dear Mr. Hellmich:

Enclosed please find an Endangered Species Consultation Program Agency Action Report for the above referenced property located in the SW ¼ of Section 11, Calumet Township, T36N, R9W, Highland, IN Quadrangle in Lake County. I am looking for any listed threatened or endangered species that might occur on or within 0.5 mile of the subject property. Copies of the property location, the NWI map, and the soil survey map are provided.

Please return the completed report to Tom Hintz at this office. Thank you for your assistance and please call with any questions.

Sincerely, V3 CONSULTANTS

Tom Hintz Senior Ecologist

TH/cd

Enclosures

APPENDIX V:

J-PIT GREEN SPACE SITE / ACOE JURISDICTIONAL DETERMINATION

DEPARTMENT OF THE ARMY

DETROIT DISTRICT, CORPS OF ENGINEERS
REGULATORY OFFICE
SOUTH BEND FIELD OFFICE
2422 VIRIDIAN DRIVE SUITE # 101
SOUTH BEND, INDIANA 46628

June 20, 2003

IN REPLY REFER TO

File No. 90-145-129-2

Dorreen Carey, Coordinator City of Gary Department of Environmental Affairs 504 Broadway, Suite 1012 Gary, Indiana 46402

Reference: "Draft Baseline Ecological Assessment," prepared for City of Gary, Indiana, prepared by V3 Consultants, Woodridge, Illinois, dated December 2, 2002.

Dear Ms. Carey:

This is in response to your recent correspondence regarding Department of the Army jurisdiction over the "J-Pit," an actively managed and pumped quarry pit located northwest of the intersection of Colfax and 21st Avenue in Gary, Indiana (Section 11, Township 36N, Range 9W). In the referenced report and enclosed maps it is referred to as the "Green Space Site." We have determined that the J-Pit or Green Space Site does not meet Corps criteria for regulation and is, therefore, not within Federal jurisdiction (reference Preamble to 33 CFR 328.3 (e)).

You submitted the referenced report with your request. On page 25 of that report V3 Consultants state that the wetland delineation for Area 4c has not been completed yet. We are therefore withholding verification of jurisdiction determination regarding any other areas of the property. This letter of verification applies only to the J-Pit proper (("Green Space Site"), as indicated on the enclosed Figure titled "Sheet 1 of 1, J-Pit Redevelopment Project."

This jurisdiction determination is valid for a period of five (5) years from the date of this letter unless new information warrants revision of the delineation before the expiration date. We suggest that you contact the Indiana Department of Environmental Management (IDEM) at P.O. Box 6015, Indianapolis, Indiana 46206-6015, for a determination of State permit requirements.

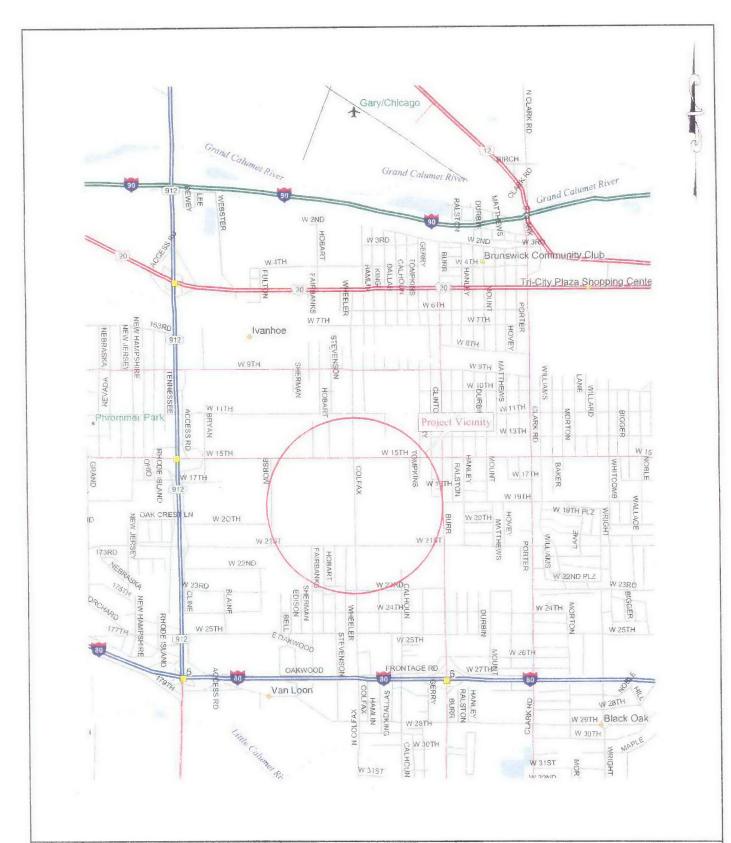
Thank you for giving us the opportunity to review this proposal. If you have any questions, please contact Steven W. Sprecher at the above address or telephone (574) 232-1952. Please refer to File Number: 90-145-129-2.

Sincerely,
ORIGINAL SIGNED BY

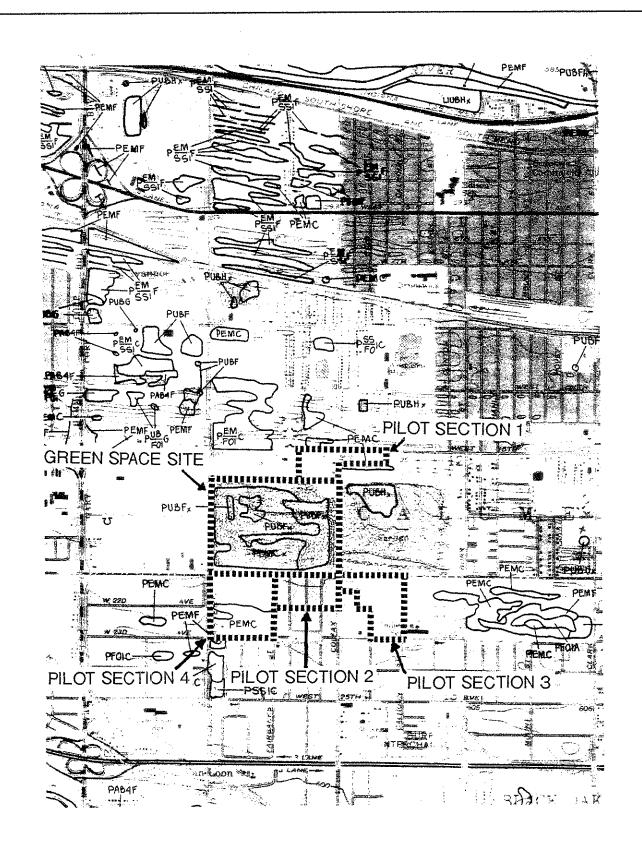
Gregory A. McKay Project Manager South Bend Field Office

Copy Furnished
V3 Consultants
Indiana Department of Environmental Management

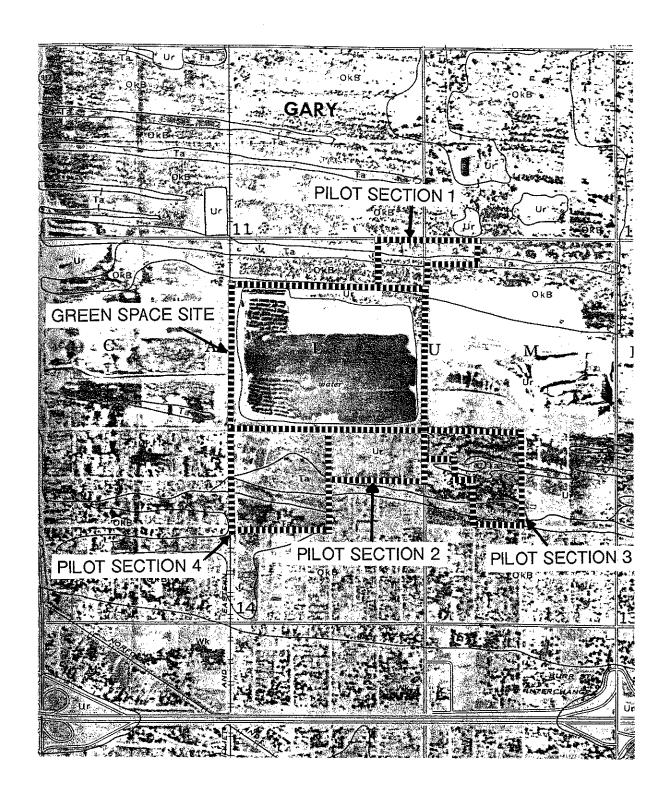
EXHIBITS



PROJECT V3 CONSULTANTS J-PIT REDEVELOPMENT PROJECT PROJECT LOCATION MAP PROJECT NO. EXHIBIT SHEET CITY OF GARY 01210.W21 OF: 1 Consulting Engineers, Scientists, Surveyors DEPT. OF ENVIRONMENTAL AFFAIRS 7325 Janes Avenue, Suite 100 504 Broadway, Suite 1012 FILE NAME DATE SCALE Woodridge. Illinois 60517 NTS Gary, Indiana, 46402 N/A 1/11/02 (630) 724-9200



V3 CONSULTANTS	NATIONAL WETLANDS INVENTORY MAP	J-PIT REDEVELOPMENT PROJECT			
Consulting Engineers Scientists, Surveyors	CITY OF GARY DEPT. OF ENVIRONMENTAL AFFAIRS	PROJECT NO 01210.√/21	Exilist II	SHEET, 1 QF 1	
7326 Janes Avanue, Suite 190 Woodridge, Illinois 60517 7630 (724,926)	504 Broadway, Suite 1012 Gary, Indiana, 46402	File Name N/A	DATE: 1/11/02	SCALE 1 24000	



TITLE: PROJECT: **V3 CONSULTANTS** LAKE COUNTY SOIL SURVEY MAP J-PIT REDEVELOPMENT PROJECT CLIENT: PROJECT No. EXHIBIT: SHEET: 1 CITY OF GARY Consulting Engineers, Scientists, Surveyors 01210.w21 OF: 1 DEPT. OF ENVIRONMENTAL AFFAIRS 7325 Janes Avenue, Suite 100 Woodridge, Illinois 60517 (630) 724-9200 504 Broadway, Suite 1012 FILE NAME: DATE: SCALE: Gary, Indiana, 46402 N/A 1/11/02 1:15840

